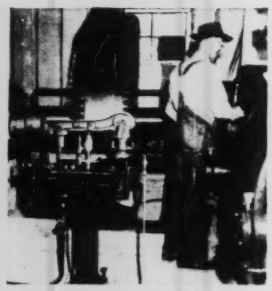
AUSTRALIA

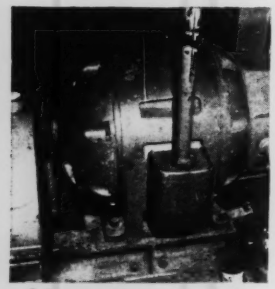
putting a MILLION cu. yds. of concrete in its place

. . . Electrically

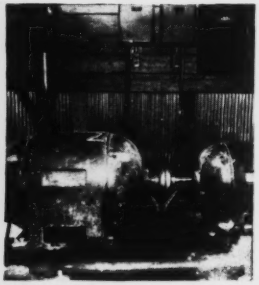


G-E 500-hp motor drives two 3000 cu. ft. Ingersoll Rand air compressors

Synchronous motor starter and control for air compressors



G-E motor-generator set operates frequency converters that run vibrators



200 hp G-E motor operates the hoisting mechanism of the American Revolver Crane

Contractors at Clark Hill Dam rely on G-E powered equipment to meet stiff work schedule

When you're working around the clock on a big construction job, there's no time for shutdowns. Your equipment has got to be reliable, easy-to-maintain. and safe. That's why Allstates Constructors, Inc., and the Corps of Engineers are making extensive use of *electrically driven* construction equipment—from vibrators to giant revolving cranes—for placing concrete at Clark Hill.

More and more machinery manufacturers and contractors are discovering the time- and money-saving advantages of dependable *electric drive.* And with G-E drive they get the added advantage of expert engineering assistance in application, installation, and service—wherever the job may be.

Ask him Today!

Whether you buy or build construction equipment, your G-E representative can show you how to do a better job—at lower cost—by complete electrification. Write him now, and he'll call on you at your convenience.

Electrified Construction
BETTER PRODUCT
LOWER COST

GENERAL ELECTRIC

664-5

Meets ASTM Specification A305

BETHLEHEM STEEL

Tests have demonstrated that proper deformations on reinforcing bars reduce cracking of reinforced concrete, and often eliminate the need for end hooks. To promote better performance of reinforced concrete, the industry has followed up these tests by developing ASTM Specification A305, which defines minimum requirements for deformations.

Keeping pace with the current demand for more positive deformations on concrete reinforcing bars, Bethlehem is now furnishing an improved reinforcing bar which easily meets the requirements of the specification. The new Bethlehem bar has high, alternately sloped cross lugs to assure maximum mechanical grip in concrete. The lugs are also closely spaced, to quickly transfer tensile stresses from the concrete to the steel. Thus shorter laps are possible.

The improved Bethlehem Reinforcing Bar is made from new billet steel, and comes in all sizes from ⅜ in. to 1¼ in. Full details are available from the nearest Bethlehem sales office.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by
Bethlehem Pacific Coast Steel Corporation

Export Distributor: Bethlehem Steel Export Corporation

Bethlehem Reinforcing Bars

Always remember... only one Shelf Angle Insert is named PEERLESS... and only the PEERLESS by RICHMOND lives up to the name!

INSIST ON RICHMOND
... AND BE SURE IT'S RICHMOND!
Richmond
SCREW ANCHOR CO., INC.
816-838 LIBERTY AVENUE · BROOKLYN 8, N.Y.
MANUFACTURERS of
ENGINEERED TYING DEVICES,
ANCHORAGES and ACCESSORIES
for CONCRETE CONSTRUCTION

SEND FOR FREE CATALOG
RICHMOND SCREW ANCHOR CO., INC.
820 Liberty Avenue, Brooklyn 8, N. Y.
NAME_____
ADDRESS_____
CITY_____ STATE_____

ENGINEERING NEWS-RECORD

VOLUME 143 — NOVEMBER 3, 1949 — NO. 18

WALDO G. BOWMAN
Editor

FEATURES IN THIS ISSUE

Making the Fill at Dorena Dam 24

Compact Sewage Plant for 160 People ..... R. W. Simpson 27

Charts Give Air-Entrained Concrete Strength ..... J. Sigglekow 30

Building 2,000 Ft. of Wall in a Hurry ..... J. Wegweiser 32

U. S. Engineering Rebuilds a Nation 34

DEPARTMENTS

Construction Week 9

Construction Trends 11

Editorials 13

News of the Week 15

Book Reviews 38

Developments Abroad 40

Municipal Affairs 46

Unit Price 51

Education and Research 52

Men and Jobs 54

Obituaries 60

Notes on Legal Decisions 60

Elections and Activities 62

Construction Reports 65

New Products 90

Manufacturers' Publications 94

Reader Comment 96

Number of copies this issue: 45,285

Managing Editor—Eugene E. Halmos, Jr.

Associate Editors—*New York*, V. T. Boughton, (senior associate), F. S. Merritt, R. H. Dodds, J. C. Bumstead, R. N. Larkin; *Cleveland*, J. R. Carr; *Chicago*, H. T. Perez; *San Francisco*, N. A. Bowers; *Washington*, V. B. Smith.

Assistant Editors—*New York*, T. D. MacGregor, Arthur J. Fox, Jr., Melvin Dean; *San Francisco*, L. L. Wise.

Contributing Editor—Edward J. Cleary.

Business News—Elsie Eaves, *Manager*; J. A. Mahoney, Robert F. Westervelt, M. W. Roessler, M. Weizel, E. M. Huber, Jane Lucia.

Staff Assistants—Ethel Lyon, Louise Barker, Helen Chase, Henry Lefer, Behri Pratt, Ruth Imler.

Domestic News Bureaus—Atlanta, Chicago, Cleveland, Detroit, Houston, Los Angeles, San Francisco, Washington. Correspondents in 71 cities in the United States, Canada and Mexico.

Foreign News Bureaus—London, Frankfort, Paris, Moscow, Tokyo, Bombay, Melbourne, Rio de Janeiro, Mexico City. *Correspondents*—Athens, Rome, Caracas, Buenos Aires, Santiago, Shanghai, Zurich, Johannesburg and 10 other cities.

ROBERT F. BOGER
Member ABC — **Publisher** — Member ABP

November 3, 1949 — **ENGINEERING NEWS-RECORD** — Vol. 143—No. 18

Publication Office—99-129 N. Broadway, Albany 1, N. Y.

Executive and Editorial Offices—330 West 42nd St., New York 18, N. Y.

Copyright 1949 by McGraw-Hill Publishing Co., Inc. All rights reserved. Published every Thursday by the McGraw-Hill Publishing Co., Inc. James H. McGraw (1860-1948), founder; JAMES H. McGRAW, JR., President; CURTIS W. McGRAW, Senior Vice-President and Treasurer; JOSEPH A. GERARDI, Secretary; NELSON BOND, Vice-President and Director of Advertising; EUGENE DUFFIELD, Senior Vice-President, Publications Division; J. E. BLACKBURN, JR., Vice-President and Director of Circulation. Cable Address, "McGraw Hill New York."

Subscriptions: 1 yr., 2 yr., 3 yr.: U. S. and possessions $6, $9, $12; Pan America, $10, $16, $20; Canada, $8, $12, $16; All others, $20, $30, $40.

Address all communications about subscriptions to Director of Circulation. Price 35¢ per copy.

Please indicate position and company connection on all subscription orders.

Entered as Second Class matter October 29, 1936, at the Post Office at Albany, N. Y., under Act of March 3, 1879. Printed in U. S. A.

IT TAKES A BAKER FOR THE MAN SIZE JOBS

It is significant that today on the BIG TOUGH JOBS you'll find Baker Bulldozers and the A-C HD-19 in the key spots . . . . where the going is toughest, where big yardages must be moved fast and at lowest cost.

And it's not the color of the paint that makes Baker the favorite — it's the reputation they've been building up among experienced users — for outdozing anything in the field — for more yardage per pass — for easier operation — for rugged dependability.

These are facts that can be proved in the field, on your job. If you are still using your regular bulldozers, it will pay you to investigate this great, new Baker. See your friendly Baker Allis-Chalmers dealer today.

BAKER MFG. CO.
Springfield, Illinois

Insist on stability...
...insist on OZALID!

When you duplicate with Ozalid, you save precious time and expensive labor.

For Ozalid copies anything written, drawn, typed, or printed on translucent material in as little as 25 seconds!

When you duplicate on Ozalid, *you save still more time and labor!* You needn't waste time "learning" the characteristics of each new batch of sensitized material.

Because rigid laboratory control insures that each shipment of Ozalid material will give the same performance as the last shipment and the shipment before that.

Month after month, shipment after shipment, you'll find this constancy in speed, in density, and in color. You'll find excellent fade-resistance. Physical strength, storage life, dye density, and ease of development are kept in scrupulous balance.

Another Ozalid Advantage is the nationwide service organization at the other end of your telephone. These technically trained business wizards will keep your Ozalid operation at top efficiency, will help you work out new methods of getting more done with less work... through Ozalid!

If you don't know what the above is all about ... you better hustle a letter requesting the full story of the newest business system, Ozalid. A FREE booklet explaining how error-proof Ozalid duplicates just about everything in seconds, is yours for the asking. If you're too busy to write, look in your classified telephone directory.

Don't copy...use
OZALID

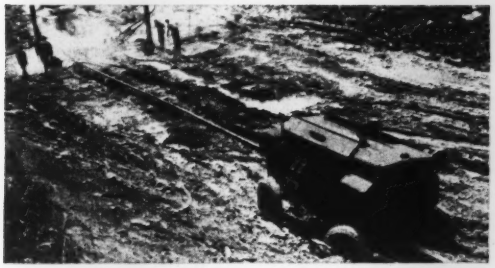
Ozalid, Johnson City, N. Y. Dept. 119

A Division of General Aniline & Film Corp.

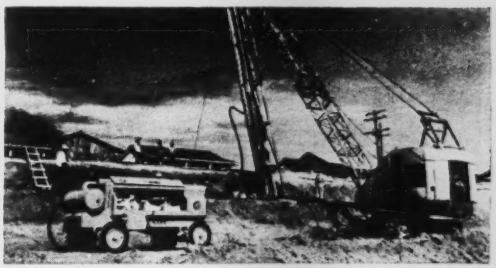
"From Research to Reality"

JAEGER "new standard" compressor sizes go to 600 cfm - to boost production, cut job costs

Line Cutting an Extra Foot a Minute — 25% Direct Increase: To line-cut pavement before removing car tracks from San Francisco's busy Market Street, Eaton & Smith mounted a row of 3" automatic feed drifter drills in quick adjusting saddles along side of truck. A Jaeger Model 600 in place of "old standard" 500 ft. compressor, enabled them to add a fifth drifter, drill two 5-hole settings interspaced at 6" in one minute, and advance 5 ft. instead of 4 each time they moved ahead. That's cost cutting.



4 Days' Drilling In 3, Speeds Big Excavation: On a 1,600,000 yd. job of 60% limestone and sandstone on U. S. 22 near Pittsburgh, Ralph Myers replaced his 500 ft. compressor with a Jaeger 600, immediately stepped the working pressure behind 2 heavy wagon drills from 70 up to 90 lbs., increased daily footage 35% to 40% and broke a bottleneck that had been delaying all job progress.



15,000 Lb. Pile Hammer Needs 565 Ft. of Air — and Gets It: This big hammer is like 2 heavy wagon drills in that it needs more than 500 ft. of air to operate at full pressure and efficiency. Killian-House, at San Antonio, get top production from their heavy equipment with a Jaeger 600 which meets the requirement of 565 cfm at 100 lbs. pressure with plenty of air to spare.

These "New Standard" sizes insure the steady 90 lbs. pressure at which tools do 30% to 40% faster work: • ***MODEL 75*** *runs a heavy breaker at 90 lbs.* • ***MODEL 125*** *runs 2 heavy or 3 medium breakers or heavy rock drill at 90 lbs.* • ***MODEL 185*** *runs 3 heavy duty breakers, 2 medium or 1 heavy rock drill at 90 lbs.* • ***MODEL 250*** *runs medium wagon drill or an additional hand-held tool of any size at 90 lbs.* • ***MODEL 365*** *runs 2 medium or 1 heavy wagon drill plus hand-held drill at 90 lbs.*

THE JAEGER MACHINE CO., Columbus 16, Ohio

JAEGER

engineered equipment

COMPRESSORS • DIAGONAL SCREED FINISHERS
SCREW SPREADERS • BITUMINOUS PAVERS

STEP UP YOUR MIXER OUTPUT

with

KWIK-MIX

11-S Dandie, illustrated, is a 2-wheel, end-discharge non-tilter . . . also available as a 4-wheel mixer with side or end discharge. Note tilted Flow-Line chute for faster discharge of each batch.

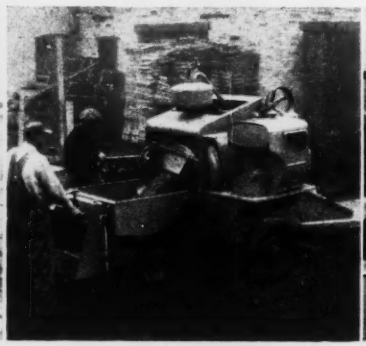
ON EVERY type of mixing job — concrete, bituminous or plaster-mortar — you can get bigger production, more profit for your labor and materials costs with Kwik-Mix mixers. Here are a few reasons why:

Through the double-mixing action of Kwik-Mix Dandie, you get perfect texture concrete at no increase in batching time or cost. Exclusive Flow-Line discharge chute reaches deep into drum . . . discharges each batch fast. Four Dandie sizes range from 3½ to 16 cu. ft. capacities, with wide choice of side or end discharge types.

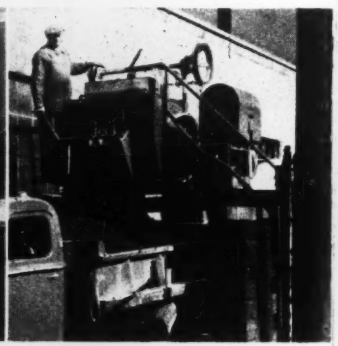
For biggest production per man-hour on your bituminous work, it will pay you to check the 10 and 14 cu. ft. Kwik-Mix bituminous models . . . easy loading . . . accurate, thorough mixing . . . fast discharging. For your plaster work, there are 6 and 10 cu. ft. Plaster-Mortar mixers that easily keep ahead of the fastest men on any job.

Every model in the big Kwik-Mix line has silent, smooth-running "V"-belt drive . . . easily adjustable, accessible . . . delivers steady, trouble-free production. Whatever your mixer requirements, you'll find Kwik-Mix the lowest cost answer. Call your local Kwik-Mix distributor for complete facts . . . or write TODAY.

3-1/2-S Dandie; side or end discharge; tilting or non-tilting. Sturdy . . . light weight . . . portable.



6-S Dandie; end discharge; non-tilting. Also shown is 4 h. p. Moto-Bug — a versatile power wheelbarrow.



BITUMINOUS mixers; 10 and 14 cu. ft.; non-tilting; 4-wheel; also ideal as high production stationary plant. 10 cu. ft. model shown.

Send to: KWIK-MIX CO., Dept. CE, Port Washington, Wis.

Please mail bulletins on: Dandie* Mixers ☐ 3½-S ☐ 6-S ☐ 11-S ☐ 16-S

Bituminous Mixers ☐ No. 10 ☐ No. 14 Plaster-Mortar Mixers ☐ 6-P ☐ 10-P

NAME ..... TITLE .....

COMPANY .....

STREET .....

CITY ..... STATE .....

☐ Also send facts on new 4 h. p., 10 cu. ft. Moto Bug power wheelbarrow.

KWIK

Port Washington, Wis.

(Koehring Subsidiary)

. PROFITS

NEW TOWER LOADER for Kwik-Mix 11-S and 16-S

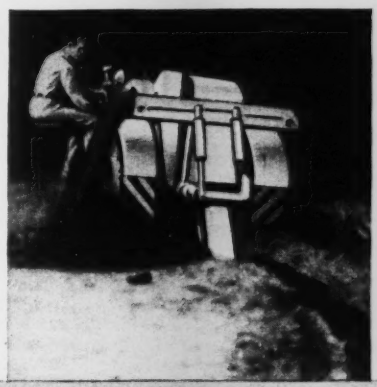
Now you can discharge concrete batches to forms above ground level, or direct into trucks with handy Kwik-Mix Tower Loader attachment. Fits 11-S and 16-S Dandie mixers . . . discharges at 9'2" height. Big bucket holds full batch . . . is raised by power . . . dumps automatically when it reaches top of tower. Mixer engine supplies the power. Single-lever operated from mixer platform. Saves you the time and cost of overhead mixer installations on many jobs.

PLASTER-MORTAR mixers; 6 cu. ft.; non-tilt; 7-second discharge; efficiently serves 1 to 30 plasterers. 10 cu. ft. size also available.

-MIX COMPANY

18.5 m.p.h. utility-size TRENCHMOBILE*

Rubber-tired, one-man Trenchmobile makes quick work of small trenching jobs, off-street connections, etc. Travels fast at road speeds to 18.5 m.p.h. over city streets and highways. No waiting for trailers. Works fast . . . digs up to 13.22 ft. per min., 4 ft. deep, 5" and 7½" wide. See your Parsons distributor or write direct to us for fact packed Trenchmobile bulletin.



PARSONS COMPANY
Newton, Iowa
(Koehring Subsidiary)

Big-Storage LO-BIN TROLLEY BATCHER

For big storage capacity and exceptionally low charging height, here's Johnson Lo-Bin Trolley Batcher. 7½ ft. high, holds 8 tons. With flared top extension panels, it's only 9½ ft. high, 10'9" overall and has 30 ton capacity. Easily charged by front-end tractor loader. Efficiently serves 6-S, 11-S and 16-S mixers. Check your Johnson distributor . . . or write for catalog.

C. S. JOHNSON COMPANY
Champaign, Illinois
(Koehring Subsidiary)

Koehring 205 handles 7-3/4 to 10-ton lifts

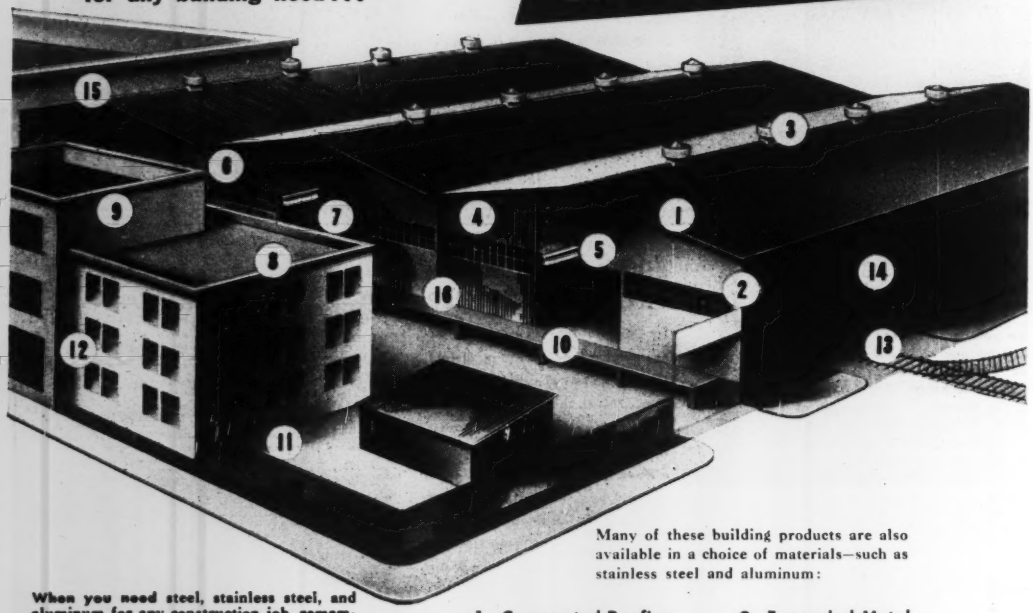
As a lift crane, Koehring heavy-duty 205 safely handles 7¾ to 10-ton loads, depending on type of mounting. Available on crawlers or rubber-tires. Its fast line speeds also give you big production on clamshell or dragline work. Readily converts to ½-yard shovel or hoe. See your local Koehring distributor . . . or get complete story in big 28-page catalog . . . write TODAY.

KOEHRING COMPANY
Milwaukee 10, Wis.

Need Steel for Building Projects?

Call us for prompt delivery of the steel products you require for any building need . . .

WE'VE GOT IT!



Many of these building products are also available in a choice of materials—such as stainless steel and aluminum:

1. Corrugated Roofing
2. Gutters and Downspouts
3. Galvanized or Aluminum for Ducts
4. Corrugated Siding
5. Beams
6. Angles
7. Channels
8. Dardelet Rivet Bolts
9. Expanded Metal
10. Floor Plates
11. Reinforcing Bars
12. Window and Door Trim
13. Rails and Fittings
14. Welding Rod
15. Plates
16. Bars

When you need steel, stainless steel, and aluminum for any construction job, remember to call us. You'll find us the *one* dependable source for *all* your requirements. You'll find, too, that your orders will be handled quickly and efficiently, and that all your requests—whether actual orders or just for information—will be given our undivided and courteous attention.

UNITED STATES STEEL SUPPLY COMPANY · USS STEELS · SERVICE

SYMBOL OF SERVICE FOR STEEL USERS

UNITED STATES STEEL SUPPLY COMPANY

Warehouses: BALTIMORE · BOSTON · CHICAGO
CLEVELAND · LOS ANGELES · MILWAUKEE · MOLINE, ILL. · NEWARK · PITTSBURGH
PORTLAND, ORE. · SAN FRANCISCO · SEATTLE · ST. LOUIS · TWIN CITY (ST. PAUL)
Also Sales Offices at: KANSAS CITY, MO. · PHILADELPHIA · TOLEDO · TULSA · YOUNGSTOWN
Headquarters Offices: 208 S. La Salle St.—Chicago 4, Ill.

USS

UNITED STATES STEEL

THE CONSTRUCTION WEEK

HOW MANY BRICKS?—Stung by public charges of featherbedding, AFL building trades unions bestirred themselves to deny the charge. In a column in the railroad union publication LABOR, the building chieftains angrily denied such charges as: bricklayers average only 300 bricks a day; painters use small brushes to drag out the work. Said C. J. MacGowan, whose Boilermaker's Union just completed a new office building in Kansas City: "They (bricklayers) averaged 1,250 bricks a day on our building." Said L. M. Raftery, painters' union secretary-treasurer, in comment on limiting size of brushes: "We do nothing of the kind . . . We use 10-in. brushes on some work, on fine work a much smaller one. We have found the 4½ in. brush to be the most efficient." Both President Dan Tracy, of the electrical workers, and President Robert Byron, of the sheet metal workers, bristled that their men were doing better work, and more work, now, than pre-war.

BIG DAMS FOR CANADA—Actively pushing irrigation development in its western provinces, Canada is catching the fever of big projects. Example: It is almost certain that a site has been selected on the South Saskatchewan River for an earthfill dam that will be exceeded in size only by Ft. Peck and Garrison Dams in the U. S. This dam would form the world's fourth largest reservoir, would involve 120,000 horsepower. Foundation materials are shales similar to those at Ft. Peck.

BUILDING FOR THE ATOM—Doubled output of Uranium-235 (core of one kind of atom bomb) is the objective behind announcements in the last week of stepped-up construction for the Atomic Energy Commission. Items on the program: Build-up of the gaseous diffusion plant at Oak Ridge; build-up for plutonium and U-235 plants at Oak Ridge and Hanford; power expansion of TVA facilities near Oak Ridge. Total earmarked for construction and equipment will run to $296 million—nearly half of appropriated AEC funds for the current fiscal year. Sidelight note on TVA: Out of this build-up, TVA will get an expansion comparable to its wartime installations—a second steam plant, possible additional units for New Johnsonville, and perhaps new hydro plants.

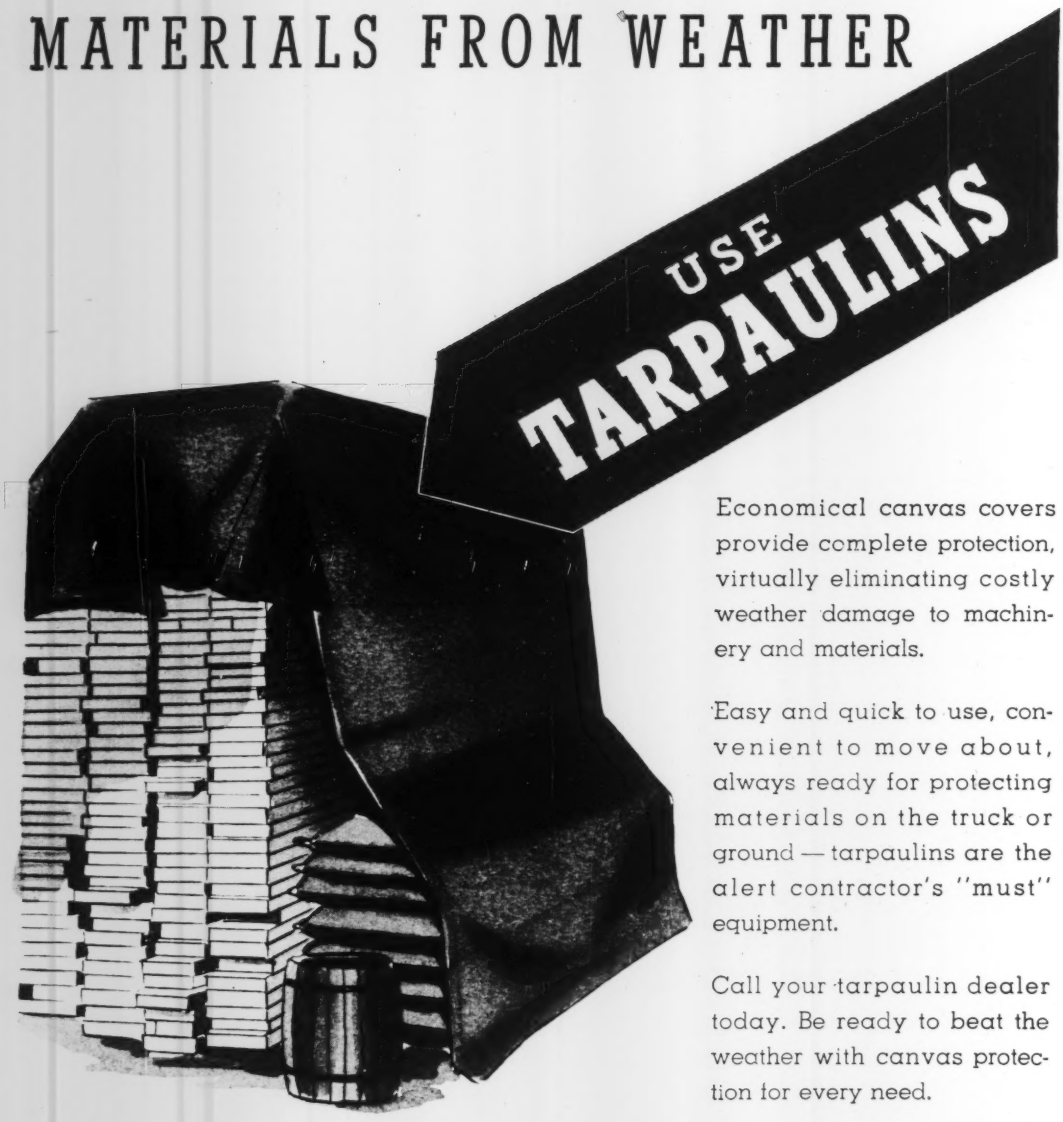
WATER FOR IRON—An application has been forwarded to the Minnesota Conservation Department asking water rights of 12,000 gpm. in the area of Upper and Lower Partridge lakes. The application is a first move in plans for a $150 million iron ore beneficiation program being explored by the Erie Mining Co. Plan is to use the millions of tons of Taconite (low-grade iron-bearing rock) available on the dwindling Mesabi Range, to obtain an iron ore suitable for use in a blast furnace. Should initial explorations and experiments (which involve reducing Taconite to ore containing 63 percent iron through a crushing process) a plant would be built to handle an initial capacity of 2,500,000 tons of ore a year.

CODE CAPERS—Chicago's three-year effort to write a new city building code is rocking on its heels under angry denunciations of a last-minute maneuver by the Fire Prevention Bureau, which opponents claim virtually bars all materials but plaster as interior finish for small houses. City councilmen met Oct. 19 for what they thought would be final public consideration of the new code—to be confronted by a series of 25 amendments among other things, they require a half-hour fire protection for structures of less than 1,500 sq. ft. built outside fire limits. John O. Merrill, director of the code revision staff, charged that he was not advised of the proposed changes until a few hours before the code meeting. (The code revision approved by Merrill's staff would have removed fire-resistance requirements for small structures of the type affected.) Councilmen postponed final action.

IRAN BEGINS BUYING—With funds on deposit in the United States, Iran's agents reportedly are taking first steps in a purchasing program that is expected to follow a logical schedule: (1) Ferreting out old steam locomotives—small enough to fit Iranian tunnels—and converting them to fuel oil; (2) rounding up structural material and rails to strengthen Iran's existing lines for the new rolling stock; and (3) buying construction equipment to build irrigation works. Overseas Consultants, Inc., engineering adviser to the Iranian Government, presumably will handle these purchases under its contract to supervise Iranian redevelopment (ENR Oct. 20, p. 25 and page 34, this issue).

TRANS-ISTHMIAN CANAL—To gather first-hand information on the possibilities of a second Atlantic-Pacific ditch, Rep. Donald L. O'Toole, chairman will lead five members of a special subcommittee on the Trans-Isthmian Canal on a trip leaving New York Nov. 16. The committee will travel by water to Panama and return overland through Nicaraugua and Mexico.

PROTECT CONSTRUCTION MATERIALS FROM WEATHER



Economical canvas covers provide complete protection, virtually eliminating costly weather damage to machinery and materials.

Easy and quick to use, convenient to move about, always ready for protecting materials on the truck or ground — tarpaulins are the alert contractor's "must" equipment.

Call your tarpaulin dealer today. Be ready to beat the weather with canvas protection for every need.

NATIONAL COTTON COUNCIL . MEMPHIS, TENN.

CONSTRUCTION TRENDS

Do new industrial buildings pay for themselves by increasing efficiency?

● IN MANY CASES, the evidence is clear that companies can replace old buildings with new and make a handsome profit by doing it. In two recent cases, companies that moved into new buildings increased their overall efficiency more than 25%. Both companies reported big savings—as much as 35%—in the cost of moving materials from receiving departments, through processing, to shipping docks. The cost of supervision and office services dropped markedly. One of the companies, which had moved operations from three scattered buildings into one, was able to cut supervisory costs more than one-half. Other items—insurance, building maintenance, lighting—dropped notably. In one case, the cost of building maintenance was cut 40%.

There are other savings difficult to measure. Worker morale improves because the new plant is cleaner, quieter, a pleasanter place to work. Working hazards may be eliminated, making the company a safer place in which to work. The company gains prestige in its community and among its customers.

For many companies, a change to a new location or to a new building may make it possible to shift to new manufacturing methods or to new processes that vastly increase efficiency. By changing from the old-style process of making chemicals, soap or food in batches to processing them continuously, companies can multiply their production per worker. By moving from a two- or three-story plant to a new building with all operations on one floor, a company may cut its costs of handling materials by one-third or even as much as one-half.

● THE NEW SYSTEMS OF HANDLING MATERIALS—using fork-lift trucks and similar equipment rather than hand carts—depend for maximum efficiency, of course, on having all operations on one level, with wide aisles and plenty of room to maneuver. In many industries, too, the need for controlling humidity or heat virtually dictates the use of air-conditioning equipment—and that means a new plant in many cases. All of these things and many others have been proven, some of them in a wide variety of plants. But, as yet, industry has a long way to go in making the best possible use of such new developments—and particularly in getting buildings which allow full use of them.

But it is clear that new buildings can better industrial efficiency markedly—and that a good share of all the companies now operating in buildings 20 years old can replace them profitably.

● A SURVEY BY the Federal Reserve Bank of Boston of 663 New England manufacturers found that 15% of them believed their plant buildings were an important disadvantage in meeting competition. And 14% of the manufacturers covered by the survey believed that the location of their plants was a major competitive disadvantage. In some entire industries—some branches of the textile industry and railroad maintenance shops, for example—new types of equipment make it likely that a majority of all companies in the industry need new buildings.

This, obviously, is a huge potential market for construction. But how many industrial companies can afford new buildings? To get some idea of the possibilities, we checked the financial report on all manufacturing companies compiled by the Federal Trade Commission. Their sales in 1948 totalled $166 billion. The total depreciated value of their land, buildings, and equipment was about $38 billion. In other words, each dollar invested in facilities supported about $4 of sales. If half of the investment represents land and buildings, each dollar of building investment supports about $8 of sales.

From Department of Commerce figures on wage and salary payments and manufacturers' total sales, it seems that labor costs make up roughly one-quarter of an average manufacturer's sales.

● TO PUT THIS INTO FOCUS: It takes a building investment of roughly $125,000 to support a yearly sales volume of $1 million—and about $250,000 of that million represents wages and salaries.

That means that if a new building will save even 10% of labor costs, it can pay for itself in five years. This is a rough calculation. It does not allow for the fact that accounting figures understate the real value of replacing existing plants and equipment. The cost of replacing them may actually be double the value at which they are carried on the books.

But—even after allowing for such differences—it is clear that an average company can replace old buildings and have the new building pay back its cost well within 10 years.

This is, of course, an average company. There will be many companies, particularly those in light, precision manufacturing with high labor costs, where new buildings may pay for themselves within a few years.

We'll come back to this question in later Trends. But even this preliminary poking into the industrial market suggests that construction may have a big field ahead which has hardly been touched.

The SKF SUA unit pillow block

its DESCRIPTION

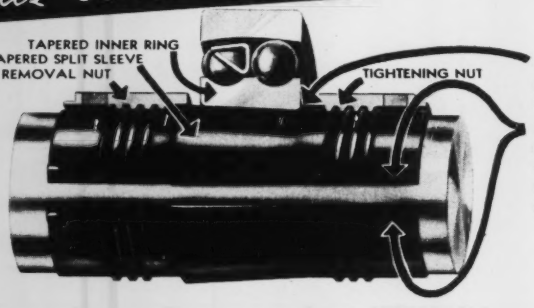
To maintain a *tight fit* between bearing and shaft, you need an SKF SUA unit pillow block.

It's completely assembled, lubricated and ready for immediate use. Available in "free" and "held" types . . . and in shaft sizes from 1 7/16" to 2 7/16".

Its SKF-exclusive Align-O-Seals prevent lubricant leakage and dirt intrusion. No exposed bearing . . . no lock screws to raise troublesome burrs on the shaft . . . for the nut is locked to the sleeve. Even though the shaft vibrates, the concentric grip will not loosen.

Designated as type SUA with ball bearings—and type SUAR with spherical roller bearings.

its CONSTRUCTION



TIGHT FIT results when the tightening nut pushes the tapered inner ring over the tapered split sleeve.

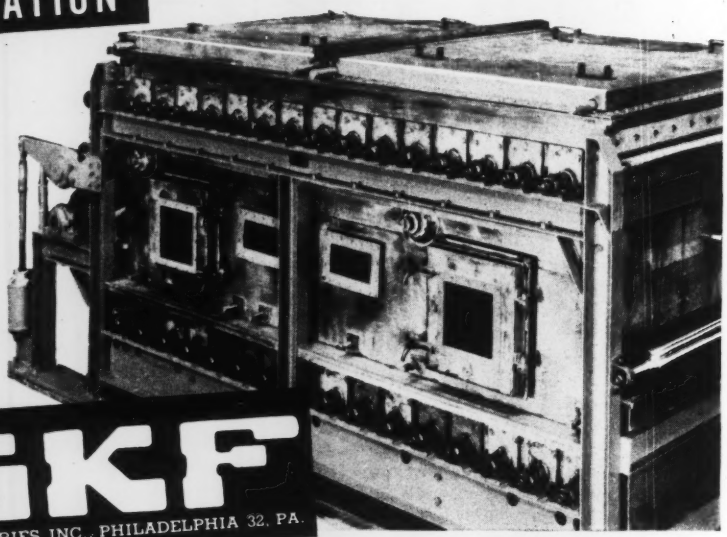
CONCENTRIC GRIP is firm and positive—as the split sleeve contracts and wraps around the shaft. Removal is accomplished by reversing the process—with tightening nut loosened, removal nut pushes inner ring off the sleeve.

its APPLICATION

THE GREENVILLE STEEL AND FOUNDRY COMPANY of Greenville, S. C., specified SKF SUA units and built a "tight fit between bearings and shafts" into this DuPont Steamer for piece goods drying.

64 SKF SUA 107 unit pillow blocks help maintain long-range dependability on this unit which operates at 150 yards per minute maximum. Our engineers can show you why the SKF SUA unit pillow block belongs in your specifications. Write today.

6600



SKF
INDUSTRIES INC., PHILADELPHIA 32, PA.

Marston and Wilgus

WITHIN A WEEK, death has come to two engineers whose names will occupy a high place in the record of civil engineering during the past half century—Anson Marston and William J. Wilgus. Marston spent most of his active career in college halls. Wilgus, in contrast, had his formal education limited to high school and a correspondence course in drafting.

Here is another reminder that the qualities that make it possible for a man to advance to the top in engineering are inborn. The real value of scholastic training is that it brings out those qualities and expands the area in which they can be applied. One can only speculate as to the heights to which Wilgus might have advanced in a field such as nuclear physics, for example, had he been trained in the fundamentals of that new science. But whether a man has a proper grounding in the fundamentals of any field is not so important as what he does in his formative years to increase and develop such knowledge as he does have.

It is here that Marston and Wilgus excelled. They never ceased to learn. Both remained young mentally long past the time when many other men stop expanding their fields of interest and knowledge.

Turning the Road Battle

OUR STATE HIGHWAY DEPARTMENTS are losing the battle with traffic, Thomas H. McDonald told the men assembled in San Antonio for the annual meeting of the American Association of State Highway Officials. Experience records of 35 states indicate that 40,000 miles of the federal-aid system should be replaced every year if we are to stop substituting costly maintenance for needed capital improvements.

That is the dark side of the picture. On the brighter side are these facts: In the fiscal year ending last June, almost 21,000 miles of federal-aid roads were completed as against only 8,000 in the fiscal year ending in June, 1947. Shortages of materials and equipment that hampered the postwar work are gone, and contractors now have ample capacity to handle a larger program. Further, Senator Dennis Chavez, chairman of the Senate Committee on Public Works, told the AASHO members that he will propose to Congress next year that it continue the current authorization of $450 million in federal aid for the primary and secondary road system, and also add $150 million for the National System of Interstate Highways and $100 million for local rural roads. That would total $700 million, of which $600 million could be spent on the primary system and main secondary roads. With the matching state funds, this would make possible an annual federal-aid program totaling $1.2 billion.

In dollar volume, the federal-aid work in the current fiscal year is expected to total to $826 million. It appears probable that the total can be raised above $1 billion in fiscal year 1951, which begins next July. Thus, by the time Congress would have had time to consider such an expanded program the highway building industry could take it on easily.

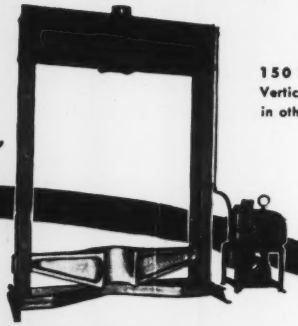
Many states still lack engineers, due chiefly to the fact that pay rates are out of line with those paid by industrial companies, and some states lack funds to match the federal aid. However, as automobile and truck registrations continue to rise, there should be more income from automotive taxes in most states next year. And as was clearly indicated in the recent Brookings Institute study, such taxes are not out of line with the service provided, and gasoline taxes can be raised without fear of curtailing consumption.

Today, highway building is still lagging far behind the country's requirements, but the prospect ahead is not too discouraging. What is needed is pressure on the state legislatures to step up the pay of highway engineers and constant reminders to members of both Congress and the state legislatures that more funds must be provided during the next several years if the battle is to be turned in favor of adequate roads.

Prestressed Concrete

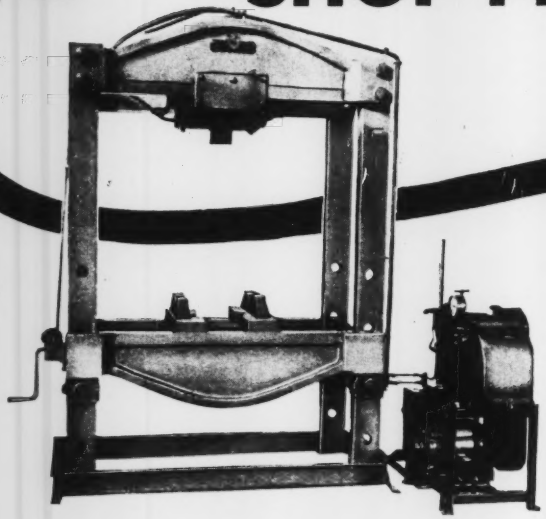
CASTING AND TESTING of the first prestressed concrete girder in the U. S. (see page 18) is a significant event. Engineering science is indebted to the engineers of the city of Philadelphia who made it possible, and to the designers, material manufacturers and contractors who built a girder that surprised experienced European engineers by its quality. In this quality—reflected in the super-strength concrete and steel—is perhaps the real lesson to be gained from the tests. The lesson is that the application of American manufacturing and construction procedures to the problems of prestressed concrete can yield economies beyond the already substantial ones achieved in Europe. It was shown at Philadelphia that our higher strength steel will permit an important reduction in the amount of steel required. Further experience and experimentation may reveal ways to handle the long and limber reinforcing units more economically and faster. Wire anchorage details, already simple, can perhaps be simplified further. Speed and simplicity in construction always point the way to savings, and the American way to achieve them is through mechanization. European prestressing is not highly mechanized. Having proved we can make high quality materials, mechanized operations are the logical next step in prestressing. The success at Philadelphia suggests that we might be successful there too.

WHERE YOU NEED RUGGED, VERSATILE *Pressing Power...*

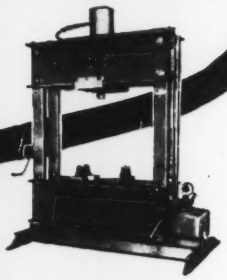


150 TON Open Yoke Vertical Press. Available in other tonnages.

Rodgers HEAVY DUTY SHOP PRESSES



300 and 400 TON Rodgers Shop Presses with 2-way travel cylinder, 14" ram travel and 4-way valve.



200 TON Rodgers Shop Press with new 2-speed or 4-speed hand pump.

FOR the big, tough jobs where you need dependable pressing power and fast operation you can meet your requirements with a Rodgers heavy duty shop press—100, 150, 200, 300 or 400 ton capacity. These sturdy, standard units are designed and built to take the rugged jobs with ease.

In addition to their construction features Rodgers Presses may be powered by your selection of 2-speed or 4-speed hand pumps or power-driven units if extra speed is required. Hand pumps can be converted to power by adding an electric gear head motor.

Standard shop presses are also available in 60 and 80 ton capacities for lighter work. Special presses are designed and made by Rodgers for specific requirements.

SEND FOR NEW CATALOG

Rodgers Catalog 313 gives full details on the complete shop press line with illustrations, descriptions and specifications. Send for your copy today.

HYDRAULICS Rodgers KEEP THE WORLD MOVING

Rodgers Hydraulic, Inc.

7441 WALKER ST., ST. LOUIS PARK, MINNEAPOLIS, MINN.

HYDRAULIC POWER EQUIPMENT

ENGINEERING NEWS-RECORD

NOVEMBER 3, 1949 VOL. 143 NO. 18

Ease Taft-Hartley strictures, construction men ask NLRB

The construction industry, backed by the American Federation of Labor, is seeking the same treatment under the Taft-Hartley Act that is accorded other industries.

Spokesmen for the industry base their complaint to the National Labor Relations Board on its failure to hold representation—or union shop—elections. That failure rests upon the fluid nature of construction employment. After one consent union shop poll last year in western Pennsylvania (ENR May 13, 1948, vol. p. 688), NLRB gave up the task as hopeless.

But industry representatives have filed a statement with NLRB, insisting that the agency approve alternate procedures which will provide contractor protection. The statement alleges that as things now stand, non-AFL unions may challenge decisions of the National Joint Board established to settle jurisdictional disputes (ENR Oct. 20, p. 23), and that contractors may be subjected to unfair labor practice charges. So the industry petition asks that NLRB declare elections to be unnecessary for the purposes of union recognition or for union shop contracts. Here's what is asked:

Seek employer freedom

1. Employers must be free to recognize certain unions and negotiate conditions for all employes in an area or on a project, whether or not a contractor then has employes.

2. They must be able to hire through unions or other sources which determine worker qualifications. No restoration of closed shop is sought.

3. They must be free to fire workers on the basis of performance or need, without charges of discrimination.

The industry petition seeking these things was signed, as individuals, by members of the committee that recently negotiated the revision of the jurisdictional disputes agreement with the AFL's building trades department. They are: James D. Marshall, assistant managing director, Associated General Contractors; R. E. Pickett, AGC's labor committee chairman; Paul M. Geary, executive vice president of the National Electrical Contractors Association; and H. R. Cole, executive secretary of the Tile Contractors Association. AFL has filed a similar plea for relief.

These proposals follow several examples of how the lack of Taft-Hartley protection poses problems. In Seattle, charges aimed at the Joint Jurisdictional Disputes Board have been filed. Crux of the complaint is that a contractor would be discriminating if he released a worker pursuant to a Joint Board decision. Elsewhere, some contractors have been found guilty of unlawful discharge for enforcing a union shop contract not validated by an election, as required by Taft-Hartley act. Some contractors face charges filed by individuals and the unaffiliated Machinists' Union, which allege discrimination in hiring AFL workers.

Taft-Hartley provides NLRB must settle jurisdictional disputes promptly, bans the closed shop and permits the union shop only after a majority of employes approve it.

Low bid is $100,000 for White House job

John McShain Inc., of Philadelphia, offered to take on the $4,160,000 job of rebuilding the White House, for a fixed fee of $100,000 Oct. 28. The bid was the lowest of 15 submitted—the top fee asked was $950,000.

The letting was unusual for public works contracts in that all bidders were pre-qualified, and that the bid was submitted on the basis that the government will pay all costs (except certain specified matters such as general overhead, tools, supplies and instruments) of the job.

Prestige to be gained in re-doing the Executive Mansion literally from the walls inward (ENR Aug. 11, p. 23) was obviously given heavy weight by the bidders. Although many builders had agreed that the contractor would need a fee of about $250,000, the four lowest bidders ranged from McShain's $100,000 to $175,000 by Vermilya-Brown Co., New York. Seven submitted $200,000-$300,000 bids.

NLRB takes some jurisdiction over road construction labor

The National Labor Relations Board will assert jurisdiction over some contractors who build roads.

In a move that could open the way for vast new responsibilities on NLRB's part, the agency accepted an election case involving a contractor who builds, maintains and repairs U.S. highways "essential to commerce."

To a small degree, the decision to take the case might alleviate a situation complained of last week by construction industry people (see left hand column, this page).

NLRB will differentiate between road builders and those who supply materials for roads.

Last week's decision was not considered far-reaching or of general application to all highway builders by certain industry sources nor NLRB spokesmen. But there was no question that the decision opened the door wider to federal control of construction labor.

Earlier rule reversed

The decision arose out of a plea that NLRB hold an election for employes of the Strong Co., Springville, Utah, contractor who builds and maintains roads in Utah and neighboring states. Under precedents set last year—which held that building material suppliers are local enterprises—NLRB last July had refused to hold a decertification election for an Ohio firm which sells materials and does asphalt resurfacing. In the Utah case, NLRB, by a 3-2 vote, has accepted a minority contention in the Ohio case—that the board should take jurisdiction over the resurfacing activity of the Ohio company. In its Utah decision, NLRB said, in part:

"We believe the activities of a company directly engaged in constructing, maintaining and repairing U.S. highways which are arteries essential to the flow of commerce . . . are so directly and intimately related to the free flow of commerce as to call for the exercise of jurisdiction by this board."

NLRB conceded it was overruling, to a limited extent, the decision of its three-man panel in the Ohio case.

NEWS BRIEFS

St. Paul Schools—A 6-year, $10,618,500 school improvement program has been recommended for St. Paul, Minn., by the Bureau of Field Studies and Surveys of the University of Minnesota. Superintendent of Schools Forrest E. Conner said that the total amount, which would have to be raised by a bond issue to be voted, could be reduced by nearly a million dollars if yearly school budgets include needed amounts for replacement of obsolete equipment.

Underground Parking—Civic backers of a $1,500,000 underground parking project in Fresno, Calif., plan to finance the 600-car facility through sale of revenue bonds—to be retired with funds provided from parking meters installed in the garage. No attendants will be required.

Ample Funds for Fla. Roads—In Florida, road fund sources are expected to produce more money for roads and bridges next year than in any year in the past. The money will come from the four cents of the gas tax which goes to the highway department, bond money from the state improvement commission, and the department's share of the seventh cent of the gas tax.

To Vote on Disposal—Two sewage disposal bond issue proposals totaling $6,380,000 are slated to go on the San Jose, Calif., ballot this month. Construction of sewage disposal facilities in the area is required by California law, which prohibits discharge of raw sewage into state waters. San Jose was cited early in 1948 for delay in complying with a State Board of Health order revoking all existing permits for such discharge as of Jan. 1, 1947.

Grade Crossing Elimination—The New Jersey Board of Public Utility Commissioners has ordered the Pennsylvania-Reading Seashore Lines to eliminate 14 grade crossings in Camden. Governor Alfred E. Driscoll said completion of the work in the scheduled year's time will speed the way for state construction of a three-level interchange highway at the New Jersey end of the Delaware River Bridge.

State Buys Toll Bridge—The four-lane, heavily traveled Market Street toll bridge across the Susquehanna River at Harrisburg, Pa., has been acquired by the state through payment of $3,850,000 for stock of the Harrisburg Bridge Co. by Secretary of Highways Ray F. Smock. The payment was made from the recently issued $8,500,000 bond issue authorized by the legislature for the purchase of ten toll bridges. The state will own all toll bridges eventually.

Gas Industry Construction—The gas industry plans expenditures of $3¼ billion for construction in the 5-year period, 1948-52, according to a recent economic survey conducted by the American Gas Association. Of that amount $3 billion will be for natural gas transmission equipment and other construction in that field.

FOUR NEW STORIES on the Port of Tacoma's cold storage plant permit quick freezing and storage of the produce grown within 100 mi. of the plant. The 130 x 130 ft. addition has 50,000 sq. ft. of floor space. All floors are divided into three rooms, insulated with 8 in. of glass fiber board covered with asphalt. A 3-in. reinforced concrete wearing slab covers the floor insulation, shown here being installed. C. W. Osgood, chief engineer for the Port of Tacoma, served in that capacity on the construction. Smith and Murray, Tacoma, were engineer-architects. Construction Engineers and Contractors, Tacoma, was the general contractor.

Water Pollution Control—A water pollution control program has been started by the sanitary engineering division of the Arizona State Health Department. Under supervision of Charles Trigg, Harvard sanitary engineering graduate, the federally-subsidized program will cover waters in headstreams, canals and irrigation ditches to detect and eliminate sources of pollution.

Safety Measure—In a tightening of safety measures, the Illinois Industrial Commission has cut the number of men who may work on a swinging scaffold from four to two, B. Jay Knight, chairman, has announced. The change is one of several contained in a revision of regulations applying to the construction industry. The code changes were adopted after a series of public hearings before an advisory committee of employer and employe representatives. Knight said the commission received reports of 528 accidents involving falls from scaffolds last year. Five of these accidents were fatal.

SWAMP BUGGY—Army Engineers of the Jacksonville district have collaborated with a farm equipment maker on design of this vehicle for use in Florida's Everglades. Tracks have a bearing pressure of only one psi. and can navigate in 3 ft. of water. Draw-bar pull is 3,500 lbs., and the tractor will go 5 mph. in high gear.

Garrison Dam low bid is $5.7 million

Marking a reverse in an earlier downtrend, the $5,740,500 low bid on Stage 3 of Garrison Dam, on the Missouri River in North Dakota, was six percent above government estimates of "reasonable contract price without profit." Bids on other Corps of Engineers projects this spring had showed a trend to fall below engineers' estimates.

Ten contractor-combinations, with headquarters in as many states ranging from Florida to California, submitted bids Oct. 18 for the work (channel and spillway area excavation and main embankment). Low bid came from Peter Kiewit Sons Co., Omaha, and Morrison-Knudsen Co., Inc., Boise—joint venturers already established at the site by virtue of their contract on Stage 2. The Stage 3 low bid is 11 percent below the next-low bid, and 42 percent below the total set by the high bidder.

Unit prices bid by the two lowest bidders show a considerable variation: Prices on comparable items in the low bid range from 11 percent below to 125 percent above the unit prices on Stage 1 (main embankment, channel and powerhouse area excavation, and test tunnel, ENR May 27, 1947, p. 217). For example, low on the largest item—outlet channel excavation—is $0.345, which is four percent below the $0.36 bid on Stage 1. Intake channel excavation, at $0.44, is 22 percent above the $0.36 bid two years ago. (Stage 2 is excavation for spillway cut and main embankment for the dam.)

The government will furnish all coarse and fine aggregate, and all rock and rock spalls—the contractor to unload, handle and place. Additionally, the contractor may use free of charge a nine-span, 1,350 ft., steel girder temporary construction bridge; a railroad spur, and a 14-mile U. S.-owned access highway.

The multipurpose Garrison Dam—key structure in Missouri Basin development plans—is to provide flood control, irrigation, hydro power, navigational and sanitation benefits, and recreation developments. With the Stage 1 contract let in October, 1947 (to Garrison Builders), the structure is scheduled for completion in the year 1954.

In the ranking of big dams, Garrison will hold a number of records. It is to be the largest rolled-earth fill in the world; it will impound the largest area of reservoir (609 sq. mi.); its 23,000,000 acre-ft. of storage will be second only to Ft. Peck (which is a hydraulic-fill structure); its intake and outlet works and tunnels will require 1,500,000 cu. yd. of concrete, a third as much as went into Hoover Dam.

Garrison Dam will be 210 ft. high; have a crown width of 60 ft. and a maximum base width of the flood plain of 2,500 ft. (exclusive of upstream impervious blanket); have a crest length of 12,000 ft.

	Stage III Bids opened Oct. 18, 1949				Stage I Sept. 12, 1947	
			Unit Prices			
Items	Quantity		(1)	(2)	Quantity	Low
Excav.—stripping	cy	14,000	$0.40	$0.70	145,000	$0.40
Excav.—int. channel	cy	1,500,000	.44	.33	1,145,000	0.36
Excav.—outlet channel	cy	6,900,000	.345	.40	369,000	0.36
Excav.—waste	cy	1,200,000	.22	.26	.....	.....
Excav.—recov. from int. chan. area	cy	120,000	.55	.40	.....	.....
Excav.—borrow area "A-9"	cy	1,500,000	.35	.36	.....	.....
Excav.—trench	cy	30,000	1.35	1.10	453,000	0.46
Excav.—misc.	cy	85,000	.50	1.40	.....	.....
Salvage lignite to west bank	cy	475,000	.20	.45	300,000	0.55
Salvage lignite to east bank	cy	50,000	.25	.80	.....	.....
Dam embankment—impery. and random	cy	7,250,000	.09	.13	10,250,000	0.04
Dam embankment—pervious	cy	285,000	.09	.06	805,000	0.04
Embankment—roadway	cy	100,000	.15	.15	.....	.....
Compacted impery. blanket—type I	cy	170,000	.16	.19	.....	.....
Compacted impery. blanket—type II	cy	135,000	.11	.13	.....	.....
Water for compaction	M gal	40,000	2.50	1.70	123,000	1.60
Addl. compaction—two (2) passes	sq	1,000,000	.02	.02	920,000	0.015
Trenching for piezometers	lf	3,200	2.00	3.70	.....	.....
Type A piezometer	ea	8	100.00	27.00	.....	.....
Type L piezometer—tip and drive pipe	ea	12	1,000.00	43.00	.....	.....
Type L piezometer—ft. of length in exc. of tip and drive pipe	lf	800	3.00	6.50	.....	.....
Plastic tubing		31,000	.12	.15	.....	.....
Terminal wells	ls	.....	5,500.00	3,933.00	.....	.....
Comb. piezometer & settlement gage: type E—lower 14 ft. of length	ea	4	900.00	6.50	.....	.....
ft. of length in exc. of 14 ft.	lf	850	18.00	27.00	.....	.....
Unloading rock and spalls	ton	300,000	.50	.91	.....	.....
Bank-run gravel for toe drain	cy	23,000	2.00	1.10	.....	.....
Perf. pipe drain—12" diam.	lf	1,700	7.00	4.50	.....	.....
Perf. pipe drain—15" diam.	lf	940	10.00	8.00	.....	.....
Perf. pipe drain—24" diam.	lf	360	15.00	18.00	.....	.....
Outfall drain—30" diam.	lf	250	20.00	35.00	.....	.....
Manhole—10 ft. depth	ea	7	500.00	650.00	.....	.....
Manhole—addl. depth	lf	45	40.00	60.00	47	25.00
Plac. slope protect.—type A	sy	140,000	2.50	1.70	.....	.....
Plac. slope protect.—type B	sy	47,000	1.80	1.35	.....	.....
Gravel roadway surfacing	cy	9,200	2.00	2.40	.....	.....
Spall surfacing	sy	5,300	1.25	.50	.....	.....
Guard rail	lf	2,400	3.50	3.00	.....	.....
Track crossing	lf	145	5.00	.80	.....	.....
Pipe culvert—station 78 + 00±	ls	lump sum	500.00	950.00	.....	.....
C. M. P. culvert—24" diam.	lf	325	8.00	4.60	.....	.....
Paved gutter	lf	2,020	5.00	6.50	.....	.....
Paved gutter at intersections	lf	520	6.00	11.70	.....	.....
Portland cement	bbl	650	4.00	7.00	3,060	4.50
Steel reinforcement	lb	62,000	.13	.12	100,000	0.10
Furn. bulldozer & oper.	hr	500	12.00	9.40	.....	.....
Furn. dragline & oper.	hr	500	18.00	16.00	.....	.....

(1) Peter Kiewit Sons Co., Omaha, Nebr., & Morrison-Knudsen Co., Inc. Boise, Idaho $5,740,500
(2) Chas. H. Tompkins & Assoc., Washington, D. C., (Joint Venture consisting of Chas. H. Tompkins, W. J. Boyle & Co., Inc. Jas. McHugh Sons, Inc. Sam G. Polino & Co., Inc.) $6,450,800

Welding Foundation sets bridge design contest

Bridge designers who'd like to try something new and better have been invited to compete for $10,000 in prizes by the James F. Lincoln Arc Welding Foundation. It's sponsoring the second "Welded Bridges of the Future" contest in an attempt to promote better bridges for less money—both in construction and maintenance cost.

The contest opened Nov. 1, closes next June 30. Called for are designs of a two-lane, through-highway bridge with a span of 250 ft. Designs are to cover welded bridges. Type of steel and loading conditions will be specified. Otherwise, there'll be no restrictions on contestants, and the Foundation wants designers "to develop new design concepts, new steel shapes, new fabricating and erecting methods and evolve changes in existing specifications providing such new ideas are consistent with good engineering practice and are practical."

First prize is $5,000, second prize $2,500, third prize $1,250. Ten honorable mention awards of $200 each will be made. Rules and conditions may be obtained from the Foundation, Cleveland 1, O.

Bid 7% under estimate on NYC sewage works

New York City's Department of Public Works recently awarded a $6,431,000 contract for structures and equipment at Owl's Head Sewage Treatment Works in Brooklyn. Thompson Starrett Co. Inc. of New York was successful bidder; the award price was seven percent under the engineer's estimate and $689,000 below the second low bid.

Although the low bid was 10 percent under second low, the total divergence—low to high—was not especially great: 27 percent.

JACKING FRAMES weighted with 400 tons of steel ingots apply loads as nation's top engineers watch . . .

Full-size prestressed girder tested

By Waldo Bowman
Editor

Four hundred engineers stood eight hours in a Philadelphia drizzle Tuesday of last week to witness the testing of a concrete bridge girder. Bleacher seats (too wet to sit on) faced the girder, on top of which a dozen ironworkers pumped hydraulic jacks and adjusted the loading frames. A loudspeaker system and a microphone, over which frequent descriptions of the progress of the test were broadcast, faced the audience. A shack at one side, on which converged tangles of electric wires from the 23 strain gages pasted like postage stamps at crucial points on the girder, added to the theatrical trappings.

Believed a record test

The girder, which caused this expenditure of effort and outpouring of words, is a duplicate of those soon to be placed in Philadelphia's new Walnut Lane Bridge, and the first prestressed concrete girder to be cast in the U. S. Measuring 160 ft. in length and 6 ft. 7 in. deep, it required 80 cu. yd. of concrete and is probably the largest structural member ever subjected to scientific test.

A modified T-section with a bottom flange 2 ft. 6 in. wide, the girder has a head 4 ft. 3 in. wide and a web 7 in. thick. Its dead weight is 150 tons, which includes the reinforcing—256 high-strength steel wires 0.276 in. in dia. arranged in four cables threaded through rectangular channels or housings formed in the girder. Two of the cables run straight through the bottom flange while the two others follow parabolic curves and are located in the web.

Vying with the girder as the center of attraction was a pleasant, ruddy-faced Belgian, Gustave Magnel, professor of civil engineering at the University of Ghent and one of the top world authorities on the prestressing technique. Imparting description, interpretation and background information with a deft and sometimes light touch, he kept interest alive.

Although the girder was loaded to failure, it was not tested to destruction (as advertised) since the available 400 tons of steel ingots, divided among 8 points of application along the girder to simulate a uniform load of 5,200 lb. per ft., provided insufficient weight. Prof. Magnel endeared himself to the audience by admitting that the blame for this error rested in his early doubts that such good concrete and wire as was used in the girder could be produced in the U. S. The wire, furnished by John A. Roebling's Sons Co., had an ultimate strength of 242,000 psi., with a yield point in the neighborhood of 213,000, while the 28-day concrete strength was 7,200 psi. The girder had been designed for 160,000-y. p. wire and 5,400-lb. concrete.

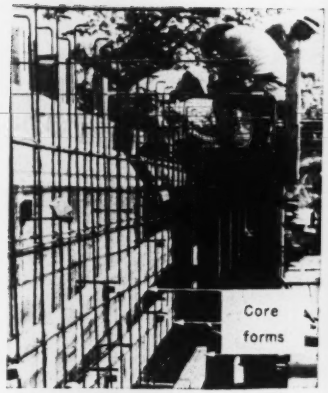
Prof. Magnel's part in the tests stemmed from his association with the Belgian construction firm of Enterprises Blaton-Aubert, under whose patents Preload Enterprises, Inc., New York, designer of the Philadelphia bridge, is exclusive licensee in the U. S. Preload Corp., of New York, is the prestressed concrete superstructure subcontractor under Henry W. Horst Co., Philadelphia, the general contractor for the $698,383 bridge. Thomas Buckley, director of public works; A. Zane Hoffman, chief engineer, and Samuel A. Baxter, assistant chief engineer, are the Philadelphia officials responsible for adopting the prestressed design.

From Prof. Magnel's periodic announcements during the day emerged the significant facts in the construction and testing of America's first prestressed concrete girder. After the girder had been precast, using easily removable rubber cores to form the openings for the reinforcing, the 64-wire cables were pulled through, then stressed to 125,000 psi. Two wires at a time were stressed with 10-ton jacks and anchored to the girder.

Cables stretched 9 in.

The total stress imparted to the four cables was 955 tons, which stretched them 9 in. Somewhere between 1 and 2 in. of this stretch (and the corresponding stress, about 15,000 psi.) will be lost through subsequent shrinkage and creep of the concrete and relaxation of the steel. Enough compressive stress will remain in the concrete, however, to assure that no subsequent live load can remove it and thus subject the concrete to tension and cracking. After the girder had been prestressed, the compressive stress in the bottom flange was 2,000 psi. and in the top 1,050 psi.

The first test load added to the 150-ton dead weight of the girder was an increment of 55 tons representing the working or design live load of 35 tons (750 lb. per ft.) plus 20 tons to account for the dead load of later paving, etc. Under this total load of 205 tons, the deflection was ¾ in. The next loading increment was double the working load and



1. RUBBER CORES form housings for reinforcing cables of steel wire.

2. REINFORCING WIRES ARE ASSEMBLED INTO CABLES on racks built at one end of the girder. Metal spacers are used to keep the wires separated.

produced a deflection of 1¼ in.

The first visible crack appeared after 22 more tons was added, or under a total load, including the weight of the girder, of 262 tons and a deflection of 2⅞ in.

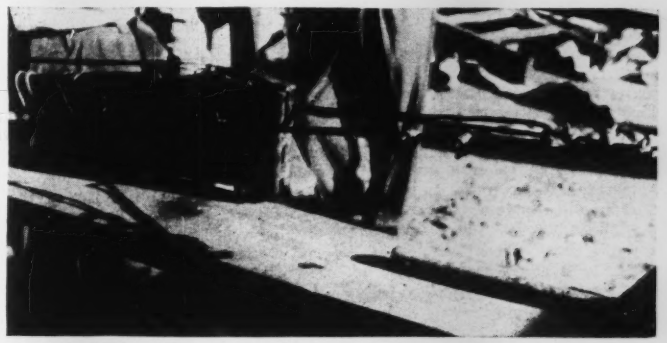
Increments of about 20 tons were then added by the jacks until at a total load of 384 tons (3,000 lb. per ft.) the deflection was 5⅜ in. It increased to 10¾ in. under a 480-ton load (4,200 lb. per ft.) and to 15⅜ in. under 528 tons (5,000 lb. per ft.). The test was stopped at this point because of insufficient weight in the loading frames to assure breaking the girder. Failure as evidenced by extensive vertical cracking had occurred.

Demonstrate design advantages

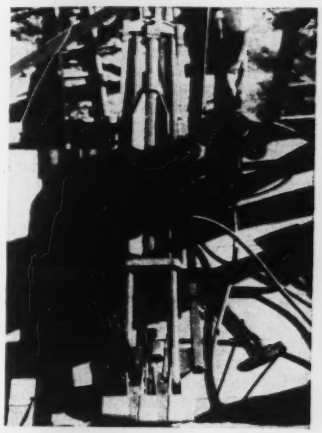
During one stage of the tests, at about half ultimate load, when numerous cracks were visible, the load was removed to demonstrate how such cracks close up—one of the claimed advantages of a prestressed design.

In an address at the University of Pennsylvana auditorium in the evening following the test, Prof. Magnel adjudged it a success even to the point of prophesying that, because of the high-grade materials obviously possible, as much as 20 percent less steel can be used in the next such girders.

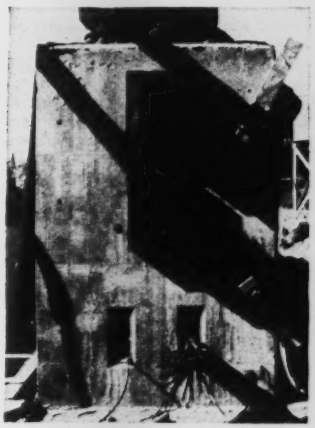
Casting of the Walnut Lane girders to the present design (ENR Dec. 30, 1948, p. 16) will commence soon. The piers are complete, and falsework is already in place in one of the two end spans. The girders for each span will be cast consecutively in the same place at the side of the roadway and slid transversely into position. Thirteen girders 160 ft. long will be required for the main span and seven girders 74 ft. long for each end span.



3. CABLES of 64 wires are pulled into the housings preformed in the girders. Anchored at one end, the wires are then stressed, two at a time, with 10-ton jacks.



4. HYDRAULIC JACK prestresses reinforcing two wires at a time. Note wedges in foreground anchoring wires in girder. The wedges fit into slotted plates.



5. END OF GIRDER after two "parabolic" cables have been prestressed. One of two straight cables is ready to be prestressed. Other is being pulled through.

William J. Wilgus dies; tunnel and terminal builder

William J. Wilgus, 83, civil engineer who had a major part in the development of the Grand Central Station and the Holland Tunnel in New York City, and the Port of New York Authority, and who headed the transportation service of the AEF in World War I, died at Claremont, N. H., Oct. 24. He had been retired for some years.

Following graduation from high school, young Wilgus was apprenticed to a civil engineer in Buffalo, N. Y. From 1885 to 1891 he served through the grades of draftsman, resident engineer, designing engineer, and division engineer on construction for the Minneapolis & Northwestern R.R. and its successor the Chicago Great Western Railway.

He went to the New York Central and Hudson River Railroad in 1893, and, successively, was assistant engineer, resident engineer, chief assistant engineer of maintenance of way, chief engineer, and vice-president in charge of the rehabilitation, improvement and expansion of the system. This included the change of motive power from steam to electricity and the inception and creation of the Grand Central Terminal, until 1907.

Supervised Detroit tunnel

From 1905 to 1910 he was chairman of the administration board of engineers in building the tunnel under the Detroit River, connecting the Michigan Central R.R. and the Canada Southern Ry.

To eliminate the smoke-filled trainshed of the old Grand Central Depot at New York, erected by Cornelius Vanderbilt in 1871, he conceived the present great terminal, and planned the electrification of its approaches for 30 miles on the Hudson division and for 25 miles on the Harlem division.

Wilgus was one of five engineers sent to France early in 1917 to report on the needs of railway and ports that were to be used by the American Army. Later he was named director of military railways and deputy director general of transportation.

Following World War I Colonel Wilgus served as a member of the board of consultants for the proposed vehicle tunnel under the Hudson River at New York. He also had an active part in studies leading up to the creation of the Port of New York Authority.

During this time he began work on "Transporting the A.E.F. in Western Europe," a military source book that was published in 1932.

In 1934 Colonel Wilgus came out of retirement to become director of work relief for the city of New York. In that capacity he was responsible for having engineers on city relief work taken out of the laborer bracket and put in a more appropriate classification.

In recent years he wrote and published "The Role of Transportation in the Development of Vermont." His very extensive library on transportation subjects was given to the Engineering Societies Library and the New York Public Library in 1937.

Missouri, Illinois agree on bi-state development

The agreement between Missouri and Illinois to cooperate in the coordinated development of the two-state metropolitan St. Louis area has become a reality with the signing of the Bi-state Development Compact.

Illinois has appropriated $50,000 for launching the work and an equal amount is included in the omnibus bill now pending in the Missouri legislature.

Among the urgent problems which will be referred to the agency to be formed by the appointment of ten commissioners are airports, union freight terminals, sewerage, drainage and stream sanitation.

A "Bi-State Metropolitan Development District" is to be created embracing the city of St. Louis and the counties of St. Louis, St. Charles and Jefferson in Missouri, and the counties of Madison, St. Clair, and Monroe in Illinois.

The agency will have "power to plan, construct, maintain, own and operate bridges, tunnels, airports, and terminal facilities and to plan to establish policies for disposal works and sewage, recreational and conservation facilities and projects, land use pattern and other matters in which joint or coordinated action of the communities within the areas will be generally beneficial."

In Honor of Elwood Mead

In a news report from the University of Wisconsin, reproduced on page 56 in the Oct. 20 issue, which related to the bequest of Daniel W. Mead to that university, the statement was made that Lake Mead back of Hoover Dam was named for Daniel W. Mead. That statement was in error. Lake Mead was named in honor of Elwood Mead, the engineer who served as head of the Bureau of Reclamation for many years.

Marston had notable career as a civil engineer

Anson Marston, dean emeritus of engineering at Iowa State College, whose death at 85 was reported last week (ENR Oct. 27, p. 33), was an active civil engineer to the end.

He was completing information on many years of culvert-loading experiments at the time of his death. He also was chairman of the Iowa State Merit System Council, which supervises the rating of state and county employes.

Dean Marston served engineering on both a statewide and nationwide basis. He was the first dean of engineering at Iowa State, the first director of the Iowa Engineering Experiment Station and a member of the state's original highway commission. He was a member of the Engineering Board of Review, Sanitary District of Chicago, the Florida Everglades Commission, the Interoceanic Canal Board, the Mississippi River Engineering Board of Review and the National Research Council. He served as a Lt. Col. of Engineers in World War I, and he was a consultant on several engineering projects in the Middle West.

Headed ASCE in 1929

Honors included presidencies of the American Society of Civil Engineers (1929; honorary member, 1938), Society for the Promotion of Engineering Education (1915) and the Land Grant College Engineering Association (1914). He was president of the Iowa Engineering Society in 1900 and that group now awards a Marston Medal. In 1904 he received the Chanute Medal of the Western Society of Engineers and in 1941 he received the Lamme Medal Award of the American Society for Engineering Education (formerly S.P.E.E.). The honorary degree, Doctor of Engineering, was conferred upon him for his achievements by both the University of Nebraska and Michigan State College.

A native of Illinois, Dean Marston attended Berea College, Ky., and Cornell University, having been graduated from the latter in 1889. After three years in railroad work, he joined the Iowa State faculty in 1892, becoming dean in 1904. He became senior dean in 1932 and dean emeritus in 1937. He published about 200 professional papers and technical reports and wrote "Sewers and Drains" and "Engineering Valuation," the latter in collaboration with his sucessor as dean of engineering, the late T. R. Agg.

APHA conference hears insect control papers

Control of insects which transmit disease from sick to well people has made tremendous progress in 50 years. It has an impressive field ahead, as well, since there are in existence today organizations working in this field on devices that would have been considered fantastic as recently as 20 years ago.

This was the theme laid before the 77th annual meeting last week of the American Public Health Association by Justin M. Andrews, of the United States Public Health Service.

See new land made useable

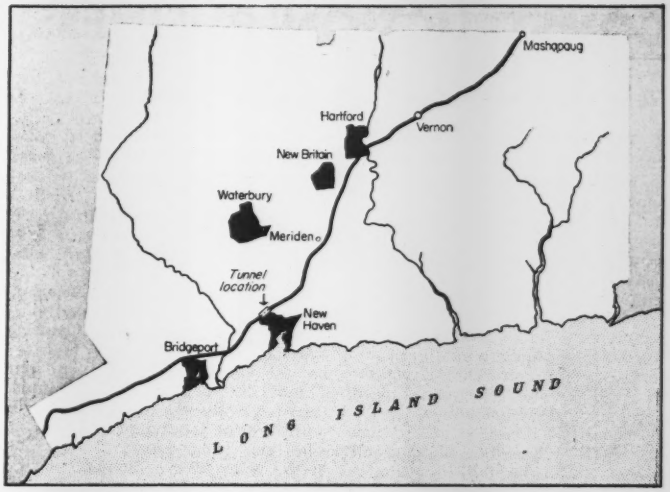
Andrews pointed to the success of regional efforts to eradicate certain insect disease spreaders in Brazil, Egypt, Chile, Sardinia and Cyprus. Their success, he said, has suggested that the mosquito which transmits urban yellow fever may successfully be eliminated from the Western Hemisphere. Municipal fly control plans are being laid in many U. S. cities, he added, and the British hope to reclaim for agriculture much territory in Central Africa that remains unproductive because of the tse-tse fly, which transmits sleeping sickness.

Frank Tetzlaff, also of USPHS, told the meeting that the new objective of U. S. malaria control is complete eradication of the disease in the United States. To achieve this, he warned, construction of all impoundments must be checked to avoid creation of breeding places for disease-transmitting insects. No major change or expansion of sanitation programs need be made to control such insects, he went on. Proper garbage disposal, elimination of swampy, mosquito-breeding areas and proper construction of outdoor toilets are measures to which sanitary engineers should give attention, Tetzlaff asserted.

Malaria control rates high

Paul F. Russell, of the Rockefeller Foundation's International Health Division, traced the continuity which has been maintained between the old Malaria Commission of the League of Nations, through interim agencies to the present World Health Organization. Malaria control, he said, has been assigned a top priority by the World Health Organization.

Eric W. Mood, of Yale University, told the conference that development of the amperometric titrator has given sanitary engineers a tool which can readily and easily measure differing forms of chlorine present in swimming pools.



Connecticut opens New Haven bypass

With the opening, Nov. 1, of a section of the Wilbur Cross Parkway near New Haven, Connecticut has now completed 90 miles of parkway and expressway that will be part of a projected 115-mi. thruway running diagonally across the state from the New York to the Massachusetts line.

Sixty-seven miles of the completed thruway consists of the Merritt Parkway (a limited-access toll highway from which commercial vehicles are excluded) and the Wilbur Cross Parkway—a similar facility. These two parkways together extend from the New York State line past New Haven to a point north of Meriden, where a connection is made to U. S. Route 5, running on northward to Hartford.

North of Meriden, the state highway department rebuilt U. S. 5 as a four-lane divided highway to Hartford, where a toll bridge was built across the Connecticut River. Beyond the river, a new expressway—known as the Wilbur Cross Highway—has been completed as far as the village of Vernon. No tolls are collected on this highway. Plans for continuing this divided highway to the Massachusetts line are in preparation.

The section opened on Nov. 1 includes the biggest structure of the entire thruway—the twin-tube West Rock Tunnel, which permits the parkway to pass completely around the snarled traffic maze of New Haven.

Each of the two tunnels is 1,200 ft. long, separated by 26 ft. of rock. Each tube has a clear height of 18 ft. 6 in. above the pavement at the center line. Pavements are concrete, 23 ft. wide and flanked by emergency walks 2 ft. 6 in. wide. Construction of the tunnel and approaches entailed removal of nearly 100,000 cu. yd. of rock and placement of about 110,600 cu. yd. of borrow material.

In the center of the tunnel, between the tubes, is a ventilating shaft containing four 6-ft. dia. ducts leading to the summit of West Rock. Each is equipped with a 72-in. ventilating fan. Fan motors are controlled by carbon-monoxide detectors, two in each tube. There is also an air analyzer and recorder.

The tunnel is lighted by a series of 300-watt luminaires attached to the roof, and controlled by electric eyes. Near the portals, the luminaires are spaced closer together to permit gradual adjustments of the motorists' eyes when entering the tube from bright daylight.

Planning for the Wilbur Cross Parkway was started in the late Thirties under William J. Cox, then highway commissioner. It was continued under the present commissioner, G. Albert Hill. Roy E. Jorgensen is deputy commissioner and chief engineer.

OCI group goes to Iran

Five U. S. experts left this week to help supervise the Iranian reconstruction program (ENR Oct. 27, p. 34) undertaken by Overseas Consultants, Inc. They are Gilbert Cooley, power expert; H. F. Dicke, motor transport; A. H. Mitchell, railways; B. K. Gallaspy and Elmer Lamp, accounting. Work in Iran is to begin immediately.

CONSTRUCTION BUSINESS

'49 postwar mass-housing year

The 1949 housing-boom carried into October with little apparent loss of momentum, assuring private mass-housing of a postwar record this year, and swelling public housing totals to nearly double the former postwar record of 1948.

Almost a billion and a half dollars worth of private apartment and home building contract awards have been reported to ENGINEERING NEWS-RECORD in the first ten months of this year, 8 percent more than the total for all of 1948. Public housing has rolled up a bumper $334 million total for the ten months, 92 percent higher than last year's $174 million already, and certain to double the 1948 public housing figure by the time the end of the year rolls around.

The peak for large-scale private housing came in September, with a total of $219 million worth of awards, or $44 million weekly. October's $33 million a week are only three-fourths as high, but they still top a year ago by 80 percent. Along with the other types of commercial building, stores, office buildings, churches and hospitals, private mass-housing is the only type of heavy construction to withstand October's seasonal downtrend. A $45 million weekly average for commercial contract awards in October is less than one percent lower than the average for 1949 to date.

Public housing hit a peak early in the year with a postwar ceiling of $50 million for the month of April. October's housing awards by public groups total $24.6 million, 26 percent below the average for 1949, but still 47 percent ahead of the October figure for last year. Federal housing has accounted for only $5.3 million a month of total public housing awards this year, with no federal projects reported during the month of October. The table below gives a breakdown of the year's housing activity so far, as reported to ENGINEERING NEWS-RECORD.

Large-Scale Housing Activity: 1949
(Millions of dollars)

Month	Private	Public	Total
January	$115.4	$30.7	$146.1
February	153.7	27.2	180.9
March*	162.1	26.9	189.0
April	147.8	50.4	198.2
May	144.3	20.3	164.6
June*	185.9	45.8	231.7
July	102.9	47.8	150.7
August	108.9	40.4	149.3
September*	219.4	19.8	239.2
October	131.9	24.6	156.5
Aver.	147.2	33.4	180.6
1948 aver.	113.2	14.5	127.7
1947 aver.	131.5	9.3	140.8
1946 aver.	126.5	13.8	140.3

* five weeks

Garrison wage rates up

Wage rates on excavation and main embankment work, stage III of the Garrison Dam project on the Missouri River, Riverdale, N. D., will be from 24 to 50 percent above comparable scales on stage I of the dam, two years ago. Equipment operators, for instance, will get between $1.35 and $2.10 an hour under the new contract, compared with a $0.90-$1.50 range during stage I. Carpenters will be making $1.90 an hour instead of the former $1.45, a 31 percent increase; electricians, at $2.05 now, are up 24 percent compared with $1.65 back in 1947; and unskilled laborers earning $1.14 an hour, are up 34 percent. (See unit prices p. 17.)

Structural steel shipments

Shipments of fabricated structural steel in September totaled 151,346 tons, reports the American Institute of Steel Construction, 14 percent below a year ago, and 17 percent lower than August shipments. For the first nine months of the year the total is 1,486,152 tons, less than one percent above the comparable figure for 1948.

Bookings in the last month before the strike increased 20 percent to 118,187 tons, but they were still 35 percent less than those of September 1948. Total bookings of new orders this year is 1,043,168 tons, a 30 percent reduction from bookings during the same period last year.

Tonnage available for fabrication in the next four months stands at 562,211 tons, according to the Institute, 20 percent less than the backlog one year ago.

Boeckh index rises

The E. H. Boeckh U. S. average cost index for brick and concrete commercial and factory building increased fractionally during the month of September to 386.6 (1913 as 100). This indicates that costs were slightly below a year earlier, when the index value recorded was 388. The interim peak of 391 came in October and November of last year, and was reached again in March 1949, with the low of 385 hit two months later in May. Boeckh says "the gray market in steel is beginning to show up again, meaning prices in excess of list. The extension of the strike to fabricating plants has stopped deliveries of structural shapes to job site, with the result that work on many large buildings is coming to a standstill."

Boeckh's New York index for the same type of construction remains unchanged in September for the third consecutive month at 454 (also 1913 base), roughly 3½ percent below the peak of 470 in March.

Fewer construction jobs during month of September

September contract construction employment declined slightly to 2,315,000 from the 2,333,000 estimated by the Bureau of Labor Statistics for the month of August. Compared with the number of workmen on construction a year earlier, the September estimate is down about two percent. BLS reported 2,369,000 on the job during September of 1948. Employment figures for recent months are shown on the accompanying table below, along with newly revised estimates of average annual employment for the two previous years.

Construction Employment
Bureau of Labor Statistics

Month	Estimate
September 1949	2,315,000
August	2,333,000
July	2,279,000
June	2,199,000
September 1948	2,369,000
Annual aver. '48	2,165,000
Annual aver. '47	1,982,000

California highway prices continue 1949 decline

Average contract prices on California State Highway work continued to decline in the third quarter of 1949, with the exception of plant mix surfacing which rose 9 percent during the quarter to $5.05 per ton, and asphalt concrete pavement which rose 13 percent to $4.60 per ton. Contract price trends of these and other major highway items in California this year are shown on the table below.

Average Contract Prices
California State Highway Work

Item	Unit	3rd/4 1949	2nd/4 1949	1st/4 1949
Roadway excav.	cy	$0.41	$0.43	$0.49
Crusher run base	ton	2.49	2.91	2.48
Plant mix surf'g	ton	5.05	4.63	4.54
Asph. concr. pvmt.	ton	4.60	4.06	5.70
PCC pavement	cy	11.53	11.74	11.84
PCC structures	cy	45.35	48.63	48.11
Bar reinf. steel	lb	0.080	0.083	0.089
Struc. steel	lb	0.093	0.110	0.113

BIDS AND BIDDERS

(Major project news received after Construction Reports, page 63, went to press.)

Oak Ridge Laboratory—Atomic Energy Commission plans $19,000,000, two-and-one-half year construction program at Oak Ridge Laboratory, Tenn. Bids are to be opened Dec. 15 for instrument laboratory. Other work on which bids will be taken later includes research building, isotope research building, roads and ground improvements, steam plant, sewage disposal plant, waste disposal and filter facilities. Austin Company, Cleveland, O., is architect-engineer for work. The Oak Ridge Laboratory is operated by the Carbon Chemical Corp.

Gas Pipe-Line—Northern Natural Gas Co., Omaha, Neb., will expand gas pipe-line system in Nebraska, Kansas, Iowa, Minnesota and South Dakota by own forces, at a total estimated cost of $51,840,000. M. C. Madsen is engineer for owner.

Office Building—Massachusetts Mutual Life Insurance Co., Springfield, Mass., awarded contract to build 21-story office in New York, to Turner Construction Co., New York, N. Y., to cost $7,000,000. Carson & Lundin, New York, are architects.

Wolf Creek Dam Hydroelectric Plant—E. J. Albrecht Co., Chicago, Ill., was low bidder for constructing hydroelectric plant at Wolf Creek Dam, Cumberland River, Kentucky, at $5,558,744, when U. S. Engineers, Nashville, Tenn., opened bids.

Renovating White House—John McShain, Inc., Washington, D. C., was low bidder. See details on page 15.

Electric Power Dams—Board of Directors, Brazos River Conservation and Reclamation District, Mineral Wells, Tex., approved plans for financing three electric power dams to cost estimated $25,000,000.

Rapid Transit System—Cleveland Transit System, Cleveland, O., plans high speed rapid transit system, $22,200,000. Plans are in progress but bids will not be taken until after new Transit Board is appointed next year.

Schools—Board of Education, City of New York, awarded contracts for P. S. 249 to Lawrence J. Rice, Forest Hills, N. Y.; $1,129,000; P. S. 12 to Pstay & Fuhrman, New York, $1,411,000; P. S. 32 to Caristo Construction Co., Brooklyn, $1,170,000, all foregoing in Brooklyn Boro. Also school at Rego Park, Queens Boro, to T. G. K. Construction Co., Inc., New York, N. Y., $1,146,200.

Severn River Bridge—Maryland State Roads Commission, Baltimore, Md., received low bids on substructure Severn River Bridge, Annapolis By-Pass, Anne Arundel County on two alternates. Merritt-Chapman & Scott Corp., New York, N. Y., was low on alternate B $3,349,800. The foundation Co., New York, N. Y., was low on Alternate A $4,402,700. Moran, Proctor Freeman & Mueser, New York, are consulting engineers.

Housing—Davison Construction Co., Manchester, N. H., was awarded contract to build Veterans Housing Project at Lowell, Mass., by City of Lowell Housing Authority, Lowell, Mass., at $2,422,000. Krokynt & Browne, Boston, Mass., are architects. J. J. Meagher, Chelmsford, Mass., is engineer for the project.

Sewage Disposal Plant and System—Northern Kentucky Sanitary District 1, Covington, Ky., has working drawings underway for sewage disposal plant and sewerage system in Kenton and Campbell Counties, Kentucky. Estimated cost is $4,000,000. Project is part of anti-pollution program for Ohio River. Vogt, Ivers & Seaman Associates, Cincinnati, O., are engineers on the program.

Roads—Bids will be taken Nov. 22 by the Bureau of Contract & Supplies, State of New York, Albany, for twelve highway projects to cost about $9,347,172, including grade separation, Buffalo, $1,216,000; roads in Elmira, $1,901,000; Palisades Interstate Parkway, $2,551,000; and Cross Bronx Expressway, Contract 9A, $1,685,000.

Apartment—Mr. and Mrs. Donald D. Dodge, Philadelphia, Pa., plan apartment development in Philadelphia to cost $3,000,000. Oscar G. Stonorov, Philadelphia, is architect.

Lavon Dam, Texas—U. S. Engineers, Galveston, will open bids Dec. 22 for spillway construction for Lavon Dam and reservoir, Lavon County, Texas, at about $2,500,000.

Coliseum—Board of Commissioners, Allen County, Fort Wayne, Ind., will open bids Dec. 8 for coliseum including ice hockey rink for Fort Wayne to cost $3,000,000. A. N. Straus, Fort Wayne, Ind., is architect.

COSTS AND VOLUME

ENR INDEX NUMBERS

Index Base = 100		1913	1926
Construction Cost	Nov. '49	480.02	230.75
Building Cost	Nov. '49	352.77	190.70
Volume	Oct. '49	248	109

Activity This Week

As reported to ENR (in millions of dollars)

Amount of Contracts let

	Week of Nov. 3 1949	Cumulative 1949 (44 wks.)	Cumulative 1948 (45 wks.)	% chge av.wk.
Federal	$9.5	$882.5	$837.7	+8
State & Mun.	57.6	2,719.7	2,276.9	+22
Total Public	$67.1	$3,602.2	$3,114.6	+18
Total Private	102.8	3,292.4	2,919.4	+15
U. S. Total	$169.9	$6,894.6	$6,034.0	+17

Contracts by type of work

	This Week	Cumulative 1949 (44 wks.)	Cumulative 1948 (45 wks.)	% chge av.wk.
Waterwork.	$3.6	$182.0	$170.4	+9
Sewerage	5.9	231.2	196.0	+21
Bridges	3.5	293.8	249.2	+21
Highways	17.1	800.7	887.9	−8
Earthwork, Waterways.	4.1	452.7	447.3	+3
Buildings, Public	26.3	1,377.2	972.4	+45
Industrial	5.5	859.8	957.7	−8
Commercial	41.3	2,009.1	1,595.3	+29
Unclassified	62.6	688.1	557.8	+26

NOTE: Minimum size projects included are: Waterworks and waterway projects, $28,000; other public works, $50,000; industrial buildings, $68,000; other buildings, $250,000.

New capital for construction

	Cumulative 1949 (44 wks.)	Cumulative 1948 (45 wks.)	% chge av.wk.
NON-FEDERAL	$4,927.6	$3,906.7	+29
Corporate Securities	1,979.2	1,829.5	+11
State and Municipal	2,563.4	1,584.9	+65
U. N. Building Loan	....	65.0	...
Federal-Aid Highway	385.0	427.3	−8
Federal	1,748.2	1,558.9	+15
Total Capital	$6,675.8	$5,465.6	+25

Weather limits working days to 75 a year in . . .

Making the Fill at Dorena Dam

EXTREMELY HEAVY RAINFALL—occasionally more than two and one-half inches a day during a five-month period—that cuts working time to about 75 days a year is the biggest problem facing the men who are building the fill for Dorena Dam in Oregon.

Processing of the available heavy clay material for the impervious fill is complicated by the wet climate.

The dam is a 3,300,000 cu. yd. earth fill with concrete overflow spillway on the right abutment. Maximum depth of fill is 147 ft., and the reservoir at the spillway will be 115 ft. deep. The structure is located on the Row River near Cottage Grove, Ore., an area where average yearly precipitation is 43.31 in., with a maximum year at more than 60 in. A cyclic weather pattern involves three months of extremely heavy precipitation (from Nov. 15 to Feb. 15) and decreasing monthly rainfalls up to about July 1. Semiarid conditions prevail during July and August (and occasionally, September).

In 1948, there were only 70 working days; in 1949 there were 81.

The fine texture of the material made close adherence to optimum moisture content a necessity to insure stability of the fill. To achieve this moisture content, material for the impervious core was repeatedly disked, sprinkled, and pulverized. Then rubber-tired scrapers excavated the material from the borrow area in thin layers —leaving the area ready for another round of processing.

Three types of fill

As originally designed, the earth fill involved three zones and a pervious drain or chimney (plus, of course, suitable rock facing). Zone 1 (on the upstream face) is random gravel fill containing not more than 10 percent clay (clay as used here is all material less than .005-mm. grain size). Zone 2 is the impervious core and it contains at least 20 percent clay and not more than 20 percent gravel (more than 2-mm. grain size). Zone 3 is random gravel or clay, or a combination of both.

Zone 3, located on the downstream face of the dam, is drained by a 10-ft. wide pervious zone extending almost the height of the dam and running under half the width of the Zone 3 material. Purpose of this pervious layer is to intercept water that might reach Zone 3 either by percolation through Zones 1 and 2 or through the dam foundation. Intercepting such water will help assure the stability of the fill and prevent sloughing.

Extent of rock-free clay material for Zone 2 available near the reservoir area was relatively limited. Further, it was found that many sheepsfoot roller teeth would break when the rock content of the Zone 2 material was very high. For these two reasons Zone 2

was split into Zone 1A and Zone 2. Both of these meet the specification requirements regarding minimum amount of clay and maximum amount of gravel. However, as placed Zone 2 was without gravel and was compacted by sheepsfoot rollers. Zone 1A contained considerable gravel (but less than the 20 percent limit) and was compacted by rubber-tired rollers.

In this way, the structure was adapted to locally available materials and, yet, functioning of the various zones wasn't significantly affected.

In general, fill for Zone 2 was spread in 8-in. layers and compacted by nine passes of sheepsfoot rollers. Zone 1 material was spread in 9-in. layers and compacted by six passes of a heavy rubber-tired roller or six passes of a power tractor with a minimum unit pressure of 900 lb. per sq. ft. Zone 1A was compacted by nine passes of the heavy rubber-tired rollers. As there was a choice available for Zone 3, compaction equipment depended on whether clay or gravel was used.

Processing the fill

Greatest problem in the construction of Dorena Dam was proper processing of the impervious fill. The available fill material is an extremely fine grained material with 40 to 60 percent of it being clay finer than .005 mm. grain size. Plasticity index for these clays is as high as 60, but fill material was restricted to clays with a lower P.I.

It was extremely important that this fine-grained material be placed with just the right moisture content. If the moisture content was too low, the material would get very hard and the job was about like trying to compact a pile of marbles. If the moisture content was too great the material would tend to bulk and maximum density became impossible to achieve. Further, stability of this impervious zone (and thus the entire dam) was dependent upon successfully obtaining a dense fill.

Each type of fill material required a different type of loading and hauling equipment. Zones 1, 1A and 3 were loaded into heavy rubber-tired equipment by elevating loaders.

This equipment could not be used on Zone 2 because only a relatively limited amount of material could be taken off at one time due to moisture requirements. The fine clay trapped the winter rains so that only the portion near the surface dried out enough for placing in the fill. In this case only a depth of 1 to 1½ ft. could be processed to the proper moisture content at one time. The tractor-hauled loaders cannot be controlled to any better than a 6- or 8-in. tolerance. So, rubber-tired carrying scrapers were used to skim off the top 10 to 18 in. of processed clay.

Pulverizers process fill

Processing this material presented additional problems. Discs first turned over the top layer of the borrow area. Because this equipment did not break up the clay material enough to get uniform moisture conditions, heavy rotary pulverizers were used. These machines have vanes similar to an egg-beater suspended on a horizontal axis. Rapid rotation of the shaft as the machine is hauled slowly over the fill area effectively processes the material.

Usually, a borrow area was so processed shortly after a layer of material was removed—the moisture content being just about right—or becoming so after processing. Occasionally, sprinkling was necessary.

Calling for such sprinkling and otherwise obtaining the proper moisture content in the impervious material at the bow area became a matter of experience. Both the contractors' men and the Corps of Engineers inspectors developed a remarkable faculty for rubbing a piece of clay between their fingers and gaging its suitability for fill purposes. Key men on this work had raw fingers during almost the entire fill period.

It was found that from 20 to 30 percent moisture content would be suitable for fill of the proper density. This came close to giving the desired 95 percent modified Proctor density. Anything over 90 percent was accepted.

Field tests were used to measure the fill density. However, besides the field density tests, samples were cut out of the fill daily for detailed analysis at the North Pacific Division, Corps of Engineers, soils laboratory.

Piezometers in embankment

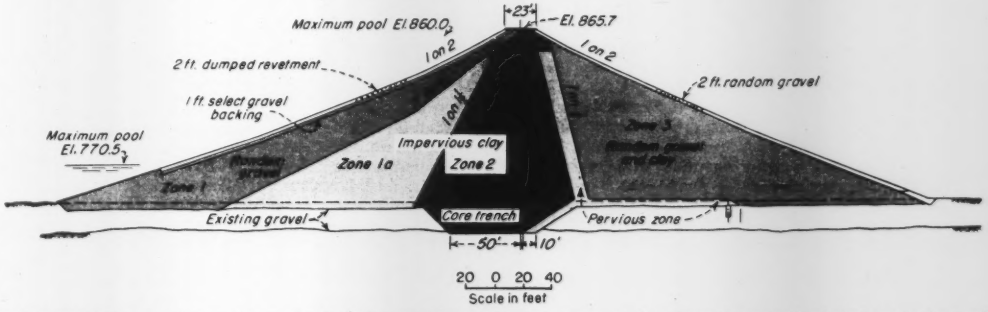
Another means of checking on the fill was by the installation of piezometers. Both open-pipe and electric piezometers were used to gage the stability of the fill during construction and check the filter operation. The electric cell piezometers transmit water pressure against a disc to a central gaging station by means of an electrical impulse.

Weather limits construction time

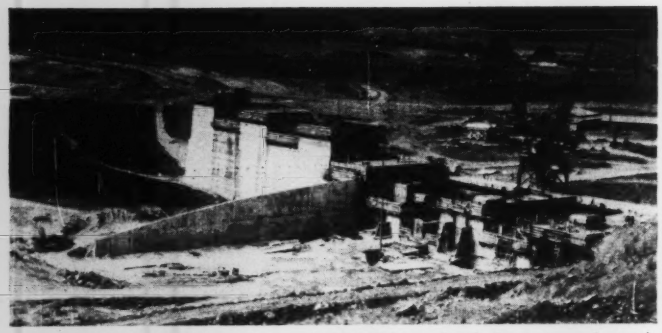
Rainfall in this area is such that there are only 65 to 90 days a year when the weather is dry enough for this clay material to be placed; the fine-grained clay tends to hold moisture. Even in dry weather, only a few inches of material near the surface dry out sufficiently.

Thus, the construction job boiled down to concentrating enough equipment on the job to make the fill in the relatively few working days available over the 3-year contract period.

In 1947 little was accomplished on the fill other than the required stripping, etc. Some fill was placed but the amount was not significant. In 1948 an extremely wet year was encountered and fill could be placed during only 70



FOUR ZONES and a drain make up the fill at Dorena Dam. The drain keeps random Zone 3 material relatively water-free and thus is expected to increase the stability of the final structure.



SPILLWAY STRUCTURE before much fill had been placed. Concrete work wasn't significantly affected by the wet weather which hampered placing of earth fill.

CLAY MATERIAL for Zone 2 was processed by a large rotary pulverizer to get uniform moisture distribution. Pulverizer blades acted like giant egg-beater to mix soil as it was pulled slowly over area.

working days. A total of 920,000 cu. yd. of fill was placed with an average of 13,000 cu. yd. a day.

Although contract expiration date is not until July 7, 1950, the contractor aimed to complete the fill during the 1949 construction season. This required a volume of 2,000,000 cu. yd. Using an estimate of 75 working days, the contractor concluded that an average of 27,000 cu. yd. a day had to be moved.

To accomplish this, considerable additional equipment was imported by the contractor. For example, in 1948 there were only 22 tractors on the job and in 1949 there were 33. The major new equipment in 1949 was a fleet of ten small (8-cu. yd.) carrying scrapers hauled by four-wheeled, rubber-tired tractors.

One additional (making a total of two) tractor-hauled elevating loader was added in 1949. To handle material from these loaders, the number of bottom-dump trucks was increased from 16 to 22. Other equipment was increased in proportion.

This concentration of equipment together with a relatively rain-free season paid off. After 81 working days, the contractor was able to complete the fill on Aug. 25, 1949, shortly ahead of the rainy season. Other features of the dam were completed a few weeks later.

Will control Willamette floods

Dorena Dam is located in the southern end of the Willamette Valley. Its primary purpose is to control winter floods. However the climatic conditions in Willamette Valley follow an annual cyclic pattern (see above) that permits multi-purpose operation of the reservoir. This climatic condition will allow the reservoir to be filled during the spring months and the water used to increase stream flow during the late summer and fall season to provide water needed for navigation, pollution abatement, domestic and industrial water supply, and irrigation of agricultural lands.

Dorena Dam will be an important unit in the flood control program for the area around Eugene, Ore. With a flood runoff of 20,850 cfs. in the Row River at Dorena Dam, the flood crest at Eugene, Ore., will be reduced by 1.1 ft. The worst flood in recent years, Dec. 28, 1945, resulted in a river stage of 17.8 ft. at Eugene and did an estimated damage of $1,900,000 in that vicinity and totaled nearly $10,000,000 in the entire Willamette Basin. Average annual benefits credited to Dorena Dam as a unit of the comprehensive development of Willamette River based on indicated future development in the area total $940,900 for flood control and $127,700 for water conservation.

Flood hazard in this portion of Oregon comes almost entirely from heavy winter rainfall.

Dorena Dam will reduce these flood peaks. Other dams in the vicinity (such as Cottage Grove, completed in 1942, and Lookout Point, now under construction) are also parts of this large-scale flood control and water conversion scheme, originally proposed by the Corps of Engineers in 1937.

Although the Willamette River feeds into the Columbia River at Portland, its floods do not correspond with the Columbia River floods such as caused the destruction of the city of Vanport on May 30, 1948. The Columbia River floods are result of Rocky Mountain snow melting in May or June. The Willamette River floods are invariably winter floods, caused by heavy rainfall within a comparatively short period of time.

Dorena Dam is a project of the Portland District, Corps of Engineers, under the general supervision of the North Pacific Division. Col. O. E. Walsh is division engineer and Lieut.-Col. D. A. Elliget is acting district engineer. Early planning and design was accomplished when Ralph A. Tudor was Portland District engineer. Detailed planning and early construction was carried out when Col. Walsh was district engineer. During all this time R. E. Hickson was head engineer and R. R. Clark was in charge of the design branch for the district. Resident engineer for the district is W. A. Schwarz.

Personnel

Contractor for the job, under a $7,737,570 contract, is Dorena Constructors, Inc., a joint venture of Guy F. Atkinson Co., W. E. Kier Construction Co., Bressi and Bevanda Constructors, Inc.; and A. Teichert & Sons, Inc. Atkinson is the sponsoring contractor with A. H. Steiner as project manager and Aubrey Horn as project engineer for overall construction supervision.

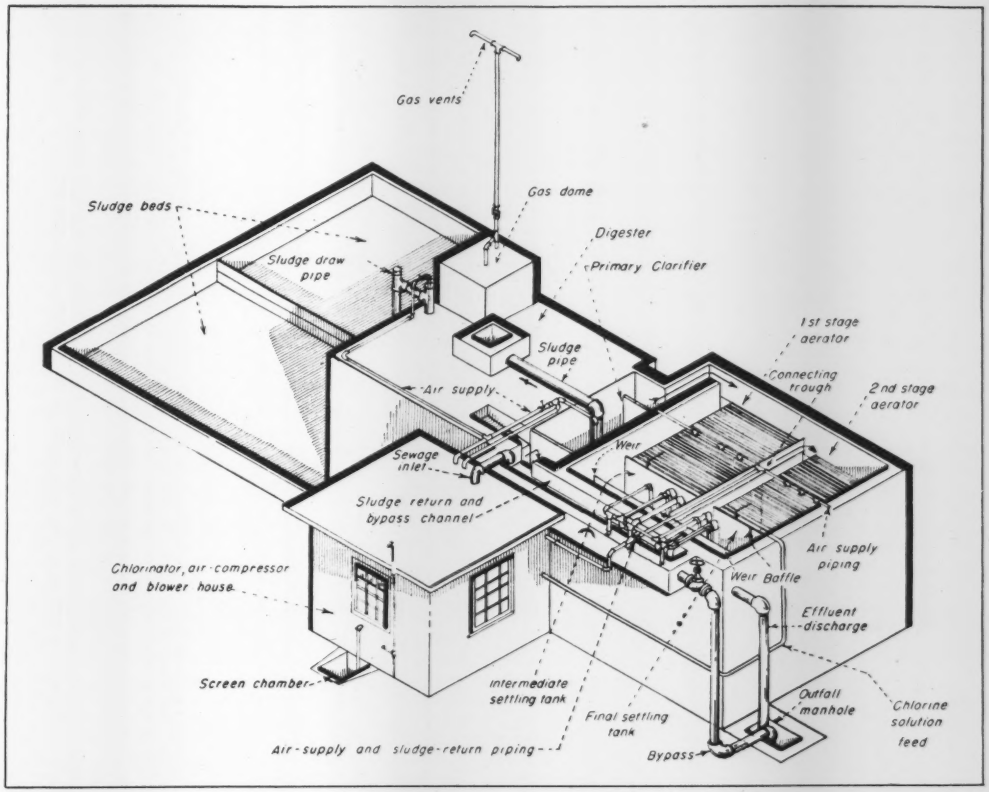


Fig. 1. THIS compact contact aeration plant at Triangle, Va., occupies only 1,000 sq. ft. of space.

Compact Sewage Plant for 160 People

R. W. Simpson
Sanitary Engineer
Gilbert Associates, Inc.
Reading, Pa.

BIOCHEMICAL OXYGEN demand removal exceeds 90 percent in a "pint-size" contact aeration plant at Triangle, Va. Effluent BOD is about 10 ppm. with actual sewage flow and strength, respectively, about one-half and two times design values. The plant is designed for 16,000 gpd. and 200-ppm. BOD.

High-quality, odor-free effluent was dictated by site conditions: The plant is located within 75 ft. of two apartment houses that have a maximum occupancy of 160, which it serves; and effluent is discharged to Little Creek, which flows through the center of the Quantico Marine Base.

Treatment units (Fig. 2) include: Screen chamber, primary clarifier, first-stage aerator, intermediate settling tank, second-stage aerator, final settling tank, chlorinator, sludge digester and twin uncovered sludge-drying beds.

Raw sewage, which flows to the plant and through the bar screen by gravity, is raised about 11 ft. to the primary clarifier by pneumatic ejection. Two ejectors in a small basement adjoining the screen chamber insure continuity of service. Remaining flow is by gravity.

Ejector discharge enters the primary clarifier against a wood-plank baffle extending 7.17 ft. below the water surface. Down-flowing sewage is turned horizontally to the tank center by a 14-in. wall-hung, sheet-metal deflector, placed 1.67 ft. beneath the baffle.

Scum collected against the shallow wood effluent baffle is broken up by applying air through a 1¼-in. perforated pipe on the longitudinal centerline of the clarifier and 2.5 ft. below the water surface. Perforations are ⅛ in. on 6-in. centers.

Sludge is accumulated in the bottom hopper and air-lifted through a 6-in. drawoff to the digester.

Settled sewage, which rises between the effluent baffle and wall of the clarifier, flows over a plate weir and through a short channel to the first-stage aerator.

Aerator inflow is through a sidewall port at the end of the tank and is distributed downward between the first four vertical contact plates. Rectangular notches in top of plates adjacent to the inlet aid distribution.

Sewage is aerated between trans-

verse asbestos-cement plates that occupy the full length of the tank. Plates, the top of which are 2 in. below the water surface, are eight feet deep and separated by 1⅛-in. wood strips at each vertical edge. They are supported above 2 x 4's bolted horizontally to tank walls. Every fourth plate extends above the water surface to prevent short-circuiting.

Air is delivered through three porous-tube diffusers, set at right angles to and 1.17 ft. below the bottom edge of the plates.

Biological growths accumulated on the plates drop off and settle into the bottom hopper. This material is drawn off through a 4-in. air-lift pipe and discharged to a trough emptying into the primary clarifier.

Aerated sewage flows over the last asbestos-cement plate weir and downward between the plate and an AC baffle to enter the intermediate settling tank a few inches above the sludge hopper. This arrangement permits upflow settling.

Sludge is pumped from the intermediate hopper by a 4-in. air lift which also discharges to the trough emptying into the primary clarifier.

Outflow from the intermediate settling tank is over a steel weir plate. It is conveyed to the second-stage aerator by a transfer trough at the top of the wall separating the first-stage aerator and intermediate settling tank from the second-stage aerator and final settling tank. This trough is formed by steel plates bolted to and extending above the wall.

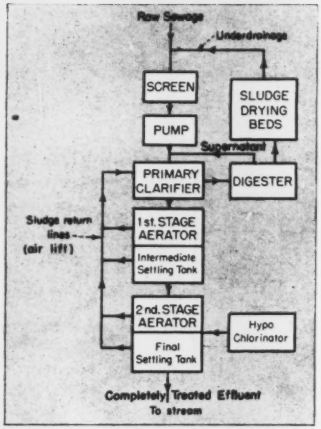


Fig. 2. CONTACT aeration process includes three-stage settling, two-stage aeration and sludge digestion and drying.

Sewage flow through the second-stage aerator and into the final settling tank duplicates that of primary aeration and intermediate settling. The single exception is that chlorine solution is diffused into the flow entering the final settling tank which serves as a contact chamber. The solution is delivered by a hypochlorinator drawing from a 55-gal. rubber-lined drum.

Sludge from the second aerator and final-settling hoppers is also air lifted through 4-in. pipes to the trough discharging to the primary clarifier.

After final settling, the chlorinated sewage passes over a level-control weir and is piped to the outfall manhole from which it is discharged to Little Creek, the source of dilution.

Digested sludge is dried

Sludge is drawn from the bottom hopper of the digester by a 6-in. air lift and discharged through shear gates to two open sand beds for drying. Sand filtered liquid is intercepted by two 4-in. open-joint tile drains embedded in coarse gravel and returned to the screen chamber.

Supernatant from the digester is discharged to the primary clarifier by displacement action.

Gas is collected in a dome extending above the fixed roof of the digester. It is vented to the atmosphere through a drip-equipped flame trap.

The gas dome is formed by a 24-in. dia. V.C. pipe encased in concrete. Extending 21-in. above the roof, the dome is covered at the top with a 3-in. concrete slab set in the bell opening. The annular space between bell and concrete slab is sealed with asphalt.

Air to operate the two pneumatic ejectors is supplied by two compressors with automatic controls. Aerators and airlifts are served by two centrifugal blowers, electric-motor-driven.

Available but scanty operating data

TABLE 1—DESIGN AND ENGINEERING DATA FOR THE CONTACT AERATION SEWAGE PLANT AT TRIANGLE, VA.

Process: Screening, primary clarification, first-stage aeration, intermediate settling, second-stage aeration, final settling, chlorination, sludge digestion, and sludge drying.

Design Factors: Population served—160; flow—16,000 gpd.; assumed sewage characteristics—200-ppm. Bod. and 200-ppm. suspended solids.

Screen: 1¼ x ⅜-in bars with 1½-in. clear openings, 12-in. wide set at 45 deg. Pneumatic ejectors: Two units, 30 gpm each; 16-ft. lift.

Primary Clarifier: 6.83 x 2.33 ft. in plan; 10.83 ft. sidewater depth; 3-ft. deep bottom hopper; influent and effluent baffles; effluent weir, 2.33-ft. long; Capacity including one-third of sludge hopper—174 cu. ft.; detention—1.94 hr.; air-jet scum breaker; airlift sludge removal.

First-Stage Areator: 5.92 x 4.08 ft. in plan; 9.5-ft. sidewater depth; 3.67-ft. deep hopper bottom; 45—¼-in. asbestos-cement contact plates, spaced at 1½-in. centers, with 2,880 sq. ft. surface area; three 3 in. o.d. porous-tube diffusers, each 5 ft. long, located 1.16 ft. below plates; capacity—225 cu. ft.; aeration period—2.55 hr.; air-lift sludge removal to primary clarifier.

Intermediate Settling Tank: 4.08 x 3.17 ft. in plan; 10.83 ft. sidewater depth; 3.67-ft. deep hopper bottom; capacity—133.7 cu. ft.; detention—1.5 hr.; sewage introduced just above the hopper for upflow settling; air-lift sludge removal to primary clarifier.

Second-stage Aerator: Identical with first-stage unit except 9.33 ft. sidewater depth.

Final Settling Tank: Identical with intermediate unit.

Total Contact Surface: 36 sq. ft. per capita.
Plant Loading: 0.272-lb. BOD. per 1,000 sq. ft. per hour contact time per cu. ft. air per gallon sewage.

Digester: 8.0 x 7.67 ft. in plan; 12 ft. sidewalk depth; 2.5-ft. deep hopper bottom; total capacity—860 cu. ft.; unit capacity—5.35 cu. ft. per capita; air-lift sludge drawoff; supernatant returned to primary clarifier by displacement; gas vented through flame trap to atmosphere;

Sludge-drying Beds: Two 14.17 x 7.0 ft. units; 12-in. freeboard; 12-in. of 0.3-0.5 mm. sand; 6 in. ¼ to ½ in. gravel under sand; 2 to 10 in. of 1 to 1½ in. gravel around two 4-in. open-joint tile underdrains; filtered liquid returned to raw-sewage inlet. Total area—1,250 sq. ft.; unit area—1.25 sq. ft. per capita.

Air Supply: Two electric-motor-driven centrifugal blowers, each rated at 22.5 cfm. at 4 psi. (2 cu. ft. per gallon sewage); Two electric-motor-driven compressors serving pneumatic ejectors.

Construction: Reinforced concrete throughout.
Cost: About $13,000.

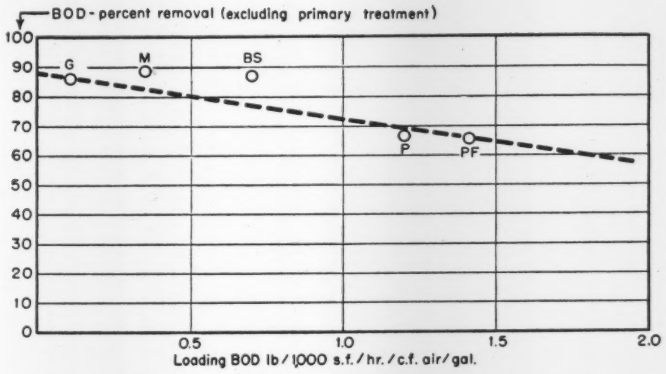


Fig. 3. TREATMENT EFFICIENCIES at the Garland, McGregor, Big Springs, Palacios and Perrin Field contact aeration plants, all in Texas, suggest a design-loading curve.

from contact aeration plants were studied during design of the Triangle project. The Texas Department of Health furnished operating results from the seven plants under its jurisdiction (Garland, McGregor, Big Springs, Palacios, and Perrin Field) which are plotted in Fig. 3. Although all points do not fall on the curve, the straight line appears justified.

Utilizing Fig. 3 and the formula—

$$L_f = \frac{B}{P \times H \times A}$$

in which B is BOD loading in pounds; P, plate surface in 1,000 sq. ft.; H, detention time in hours; A, air in cubic feet per gallon; and L_f, loading factor from curve, design for a proposed installation may be determined.

Reference to Table I and Fig. 3 indicates that the Triangle plant should provide an overall efficiency of about 90 percent. In actual operation however, greater efficiency can be expected because the Texas results are based on installations with perforated-pipe air diffusers while this plant uses more efficient carborundum tubes.

It should be noted, also, that Texas design data specifies 82 sq. ft. of contact plate surface per pound of applied BOD. The loading for the Triangle plant is much greater—360 sq. ft. of plate surface per pound of BOD.

Another important factor is oxygen supplied during aeration. Assuming oxygen concentration to be 256 milligrams per liter at sea level and summer temperature, 0.0159 lbs. of oxygen is available per cubic foot of air delivered to the aerator. As one blower will furnish 32,400 cu. ft. of air per day, 41.2 lbs. of oxygen is available at the triangle plant for the demand of 13.4 lbs. of BOD., assuming eight percent efficiency for porous tubes.

Many common walls were utilized in the Triangle plant, in the interest of economy. This arrangement results in a very compact layout but does not contribute to reduced costs because of intricate concrete forms required.

Hopper bottoms of the tanks were utilized to eliminate sludge-collecting equipment. The economy of this design may be questioned due to forming and pouring costs.

Insertion of cement-asbestos contact plates in the aerators is simple. Removal for replacement of plates or air tubes is, however, difficult due to size and weight of plates.

Installation of piping is complicated but may be simplified by eliminating, as far as possible, incased pipes and sleeves through walls. Most of the piping for the Triangle plant was installed after completion of the concrete pour (Fig. 1). Particular care had to be exercised to provide sufficient supports and hangers for air lines and sludge pipes.

Cost of the Triangle plant was about $13,000, or $81.25 per person served. Per capita investment for larger plants built in Virginia and Maryland is about $40. The comparison may be tempered somewhat by the fact that adverse weather conditions and other intangibles contributed to the abnormal construction cost.

Operation of small contact aeration plant is quite simple. Statements are made from time to time that experienced chemists and biologists are required to operate such units. If design is correct and sewage is not permitted to become septic, very little technical attention is needed. In fact, there is little that a chemist or engineer can do to alter plant operation. Sound advice, however, is essential when starting the process and periodic technical inspections are advisable.

For small plants serving 2,500 people or less, a full-time operator is not required. Operating duties at the Triangle plant include:

Daily
Clean screen
Operate all air lifts in the morning and evening
Operate primary-clarifier scum breaker
Check chlorine residual
Alternate operation of blowers
Check air pressure for ejectors
Check equipment for oil and grease.

Weekly
Clean down sides of tanks with brush and hose
Bury or burn screenings
Brush weirs
Make up hypochlorite solution
Check operation of all equipment.

As can be seen, these duties are those of a laborer. His work must be split betwee nearly morning and evening, thus he can be used for other work. The plant operator must be impressed with the necessity of pumping sludge from all units regularly. This is essential for proper functioning of the contact aeration process.

Results of operation

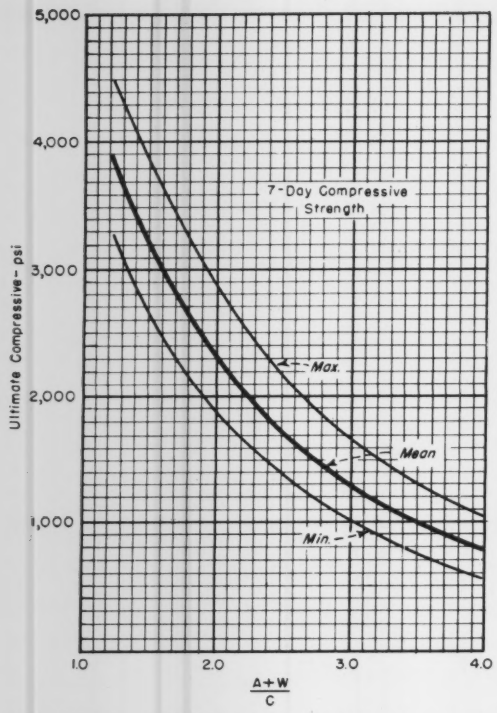
When the plant was put into operation, actual flows were found to be about one-half design values. But strength of sewage was more concentrated than anticipated—somewhat in excess of 400-ppm. BOD.

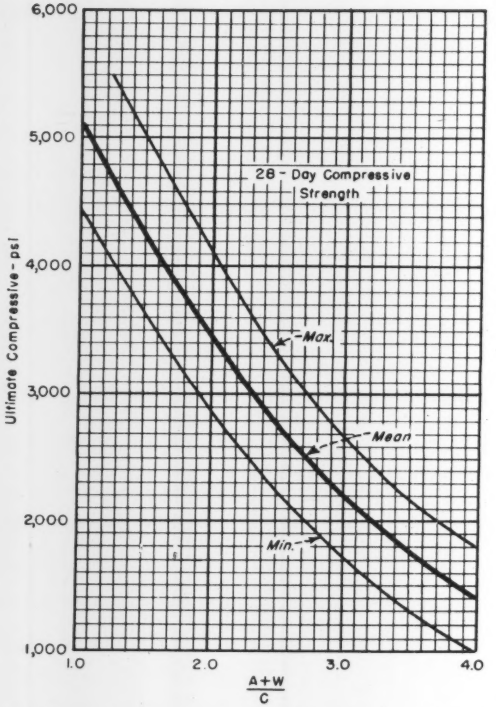
Designing engineers, patent owners and the Virginia Department of Health have obtained grab samples of raw sewage and final effluent. All results indicate that plant efficiency is in excess of 90 percent, with a final BOD. of about 10 ppm. Dissolved oxygen is maintained in all units.

Cost of operation is reported to be about $40 per month for blowers and ejector compressors. Labor is furnished by the apartment-house janitor and is not charged against operation.

As a result of the Triangle project, these conclusions regarding the contact aeration process may be drawn:

1. The process is fundamentally sound, and when such a plant is properly designed, high treatment efficiencies will result.
2. No technical help is required for daily operation, but regular inspections by qualified personnel should be made.
3. Cost of construction of a contact aeration plant is not as low as originally anticipated due to difficult forming and other features.
4. Cost of operation is quite high due to power requirements.
5. The process, in some cases, may provide an economical installation for small communities.





COMPRESSIVE STRENGTH values for air-entrained concrete are given for mixes moist-cured seven days at 70 deg. F. For curing at lower temperatures, deduct 1.5 percent per degree F. from seven-day and 1.2 percent per degree from 28-day values.

Strength of Air-Entrained Concrete Given by Job-Tested Charts

John Sigglekow
Assistant Civil Engineer
Westchester County Department of Public Works
White Plains, New York

MOST TEXTS on air-entrained concrete are vague as to what strengths to expect of the material. But there should be no mystery about these strengths. The charts presented here enable the designer to get at a glance a clear conception of what strength to expect from any proper combination of air, water and cement ingredients in a concrete whose coarse aggregate is broken stone or gravel.

Usually, strength change from "normal" concrete is given as a varying percentage loss for each percent of air entrained. However, the accompanying charts present test-result values of flexural and compressive strengths for normal air-entrained concrete mixtures.

Referring to the charts, the abscissa value

$$\frac{A + W}{C}$$

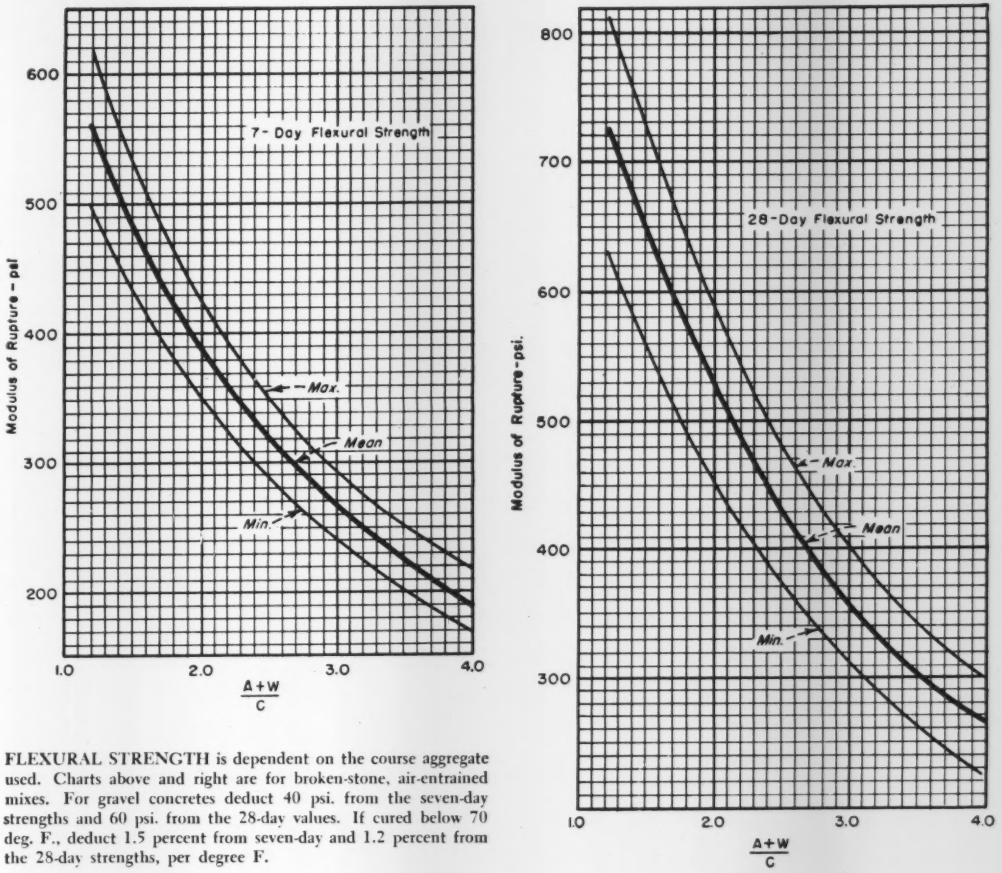
is the ratio of the absolute volume of air and water to the absolute volume of cement in the mix. It is usually convenient to use the volume in cubic feet (absolute) per cubic yard of concrete. Thus, with the air content at 4 percent, the water 30 gallons per cubic yard and the cement 6 sacks per cubic yard, the ratio

$$\frac{A + W}{C} = \frac{27 \times 0.04 + \frac{30}{7.48}}{6 \times 0.48} = \frac{1.08 + 4.01}{2.88} = 1.77$$

Entering the 28-day compressive strength chart with this value of the ratio (1.77), it is seen that the least value of the ultimate compressive strength to be expected from concrete properly cured at 70 deg. F. is 3,200 psi. after 28 days; that a fair mean compressive strength value is 3,800 psi.; and that values up to 4,500 psi. can be secured under favorable conditions.

Compressive strength is of prime interest to the structural engineer, but designers of concrete pavements will be principally interested in flexural strength as represented by the modulus of rupture.

For the same mix used in the example above (in which the ratio equals 1.77), the minimum, mean, and maximum values of the modulus of rupture



FLEXURAL STRENGTH is dependent on the course aggregate used. Charts above and right are for broken-stone, air-entrained mixes. For gravel concretes deduct 40 psi. from the seven-day strengths and 60 psi. from the 28-day values. If cured below 70 deg. F., deduct 1.5 percent from seven-day and 1.2 percent from the 28-day strengths, per degree F.

to be expected at 28 days are read from the chart as 500, 580, and 650 psi., respectively.

While the values given by the charts are for concrete cured at approximately 70 deg. F., values for other curing period temperatures down to about 40 deg. F. may be found by diminishing strength values given by the 28-day chart by 1.2 percent for each temperature degree below 70; and for values given by the seven-day chart, by 1.5 percent for each degree difference.

Strength values are for broken stone concrete. For gravel concretes the compressive strength closely approximates that for broken stone and may be taken as equal to it. But the flexural strength of gravel concrete will be less than that of broken stone concrete.. Fair averages for this difference appear to be 60 psi. at 28 days and 40 psi. at seven days.

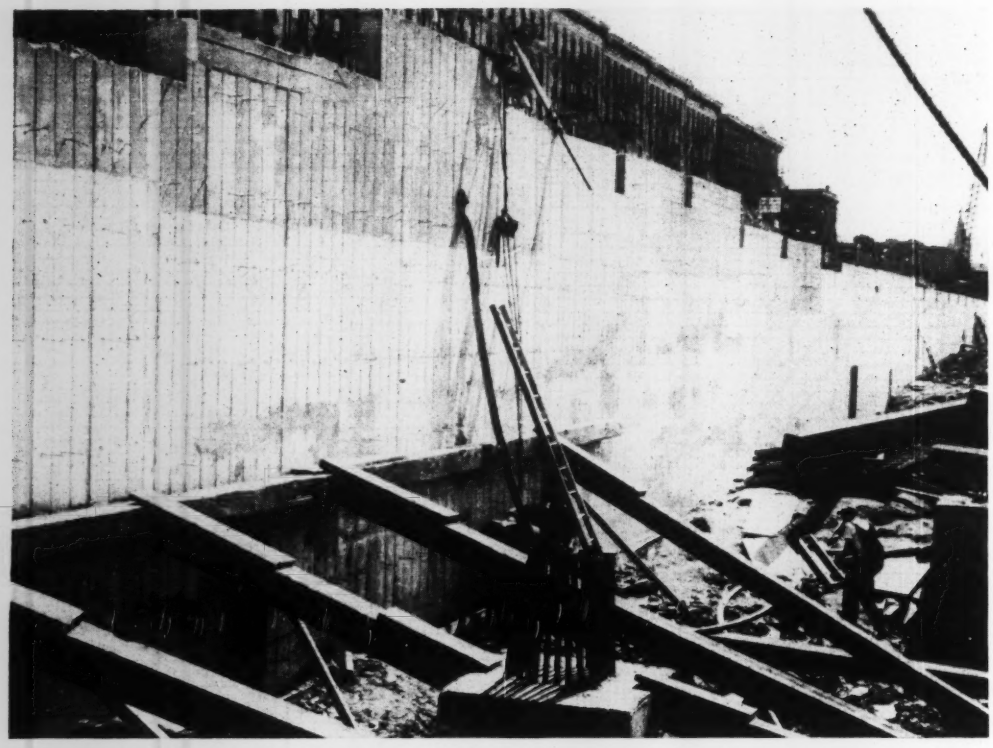
The concretes referred to are those made with portland cements without admixtures other than approved air-entraining agents.

In preparation of these charts, results of sixteen series of tests involving some 17,000 separate specimens have been examined. It is realized that higher values for strengths have been obtained, particularly with laboratory mixed concretes. But the ranges of values shown on the charts are those reasonably to be expected in concretes mixed using acceptable materials under fair supervision.

Use of high grade aggregates, competent and effective supervision, proper vibration, plus care in making, handling and curing test specimens should result in mean strength values equal to those indicated on these charts as the maximum. Should a set of test values be met which averaged consistently below the line of the lower values on the charts, the concrete would probably be found to be inferior as to materials or workmanship or to have had careless handling of test specimens —or to a combination of these.

It is believed that with improved techniques, better air-entraining agents, more uniform distribution of air, and more reliable cements, the values shown on the charts should increase. Adequate test data doubtless will appear when and as these improvements occur, and the designer making use of the charts will be able to amend them so that they may reflect the quality which he may expect on work under his control.

Strength of material used in designing structures is of prime importance; knowing this strength, and having a fair acquaintance with the varying conditions affecting the factor of safety, the designer can proceed with confidence.



BLOCK-ROUND FOUNDATION WALL for New York apartment house was built at 60-100-ft. per day rate.

Building 2,000 Ft. of Wall in a Hurry

Jack Wegweiser
Sales Engineer
Irvington Form & Tank Corp., New York

WHEN Corbetta Construction Co. started rolling on a large New York apartment house job last summer, it foresaw a lot of expensive winter concreting unless its men could put in 2,000 ft. of foundation wall in a hurry.

The job is to build a 19-story reinforced concrete structure on a whole city block on the upper east side of Manhattan. The foundation wall is 16 in. thick, formed on both sides to heights varying from 11 to 22 ft.

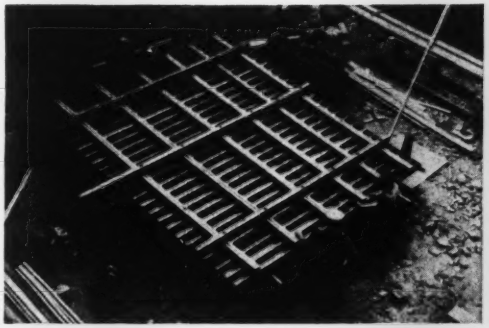
To hurry up this wall construction, Corbetta decided on form panels that could be used singly or in combination for placing walls of all heights in single pours. These panels also were to be designed for crane handling. In most cases the crane would walk the the form from the newly-stripped wall directly to location for re-use. In addition to time, the chosen method of forming and pouring saved the cost of extra labor that would have been required for the intermediate erection, pouring and stripping steps entailed in multiple-lift wall placement.

Forms were set one morning, poured that afternoon and stripped for move-up the next morning. Length of wall built each day varied from 60 to 100 ft., the whole wall being built between June 21 and Aug. 3, 1949. This completion date, together with concurrent completion of interior footings, made it possible for the contractor to get going on a superstructure pouring schedule that would terminate about January 1, 1950.

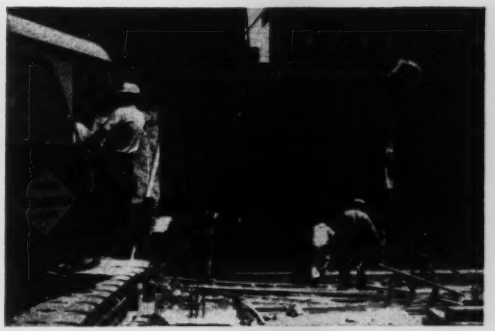
The basic form was a panel 16 ft. wide and 14 ft. high, made up of fabricated 8-in. wide, 14-gage steel channel form sections bolted together with machine bolts instead of the usual slotted bolt and wedge, and with double 2 x 4 wood walers, vertically spaced from 2 ft. to 2 ft. 8 in., and vertical 4 x 6 strong-backs at the third points. Waler and strong-back fastenings were made with carriage bolts, the heads of which were flat against the form face. This framing provided strength not only for deep pours but also for lifting stresses in all positions. Smaller forms for odd heights and widths were of similar make-up.

Form construction procedure, as shown in accompanying photos, was:

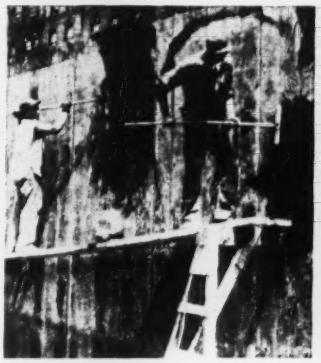
From the fabrication table the form was hoisted by crane and two-part sling to place on the footing. Position was maintained by 2 x 4 kickers back to the edge of earth excavation. The form was oiled, and reinforcing rod brackets were nailed to wooden strips in the form face. When reinforcing rods were installed, the inside form



FORM PANELS are assembled at basement floor level. They were designed for 22-ft. pours; also for two-point suspension.



CRANE SETS AN OUTSIDE PANEL. Note reinforcing almost complete at adjacent form, which had just been set.



OILING takes place after form is set. It was not necessary to wire-brush the previously-used steel surfaces.

LATHERS go to work, first nailing reinforcing-rod brackets to nailing strips in panels. Note rows of form-tie holes.

INSIDE PANELS TIED. Push-through type ties speeded this job. Note crane hoisting sling at top.

was lifted to place and lightly shored until form ties were wedged up, after which shores were removed.

An innovation in form-typing technique was employed at this point. After outside forms had been erected, spreader snap ties were placed at 4-ft. (both ways) centers. These conventional form ties also act as spreaders.

After the spreader ties were in place, reinforcing was completed and inside forms were set. Because front and rear form panels were assembled initially to insure that form tie holes would always be in line with each other, little "fishing" was necessary in installation of the next set of ties; ties of a push-through type were inserted in other tie holes, at spacings proper for the pressures anticipated. These ties had shoulders small enough to slip through tie holes, but large enough to allow them to function as additional spreaders when the "hairpins" (slotted-wedges) were driven home on both sides. This method cut down the tedious process of threading ties previously set in the outside form through the newly-set inside form.

Adjacent panels were connected by slotted bolts and wedges, and before pouring, bulkheads were placed in the open ends of forms.

As has been mentioned, preparation of forms for a 50 to 100-ft. pour, from stripping to tying, regularly took place before lunch time.

The 14 x 16-ft. panels—in many cases the only panels in a pour—usually were pulled and carried ahead in a single crane operation. Smaller panels on top had to be set aside, of course, but could be erected almost immediately on top of the lower panels to produce a one-operation concrete pour.

Concrete placement (from transit-mix trucks) took place between noon and quitting time. Concrete was placed as quickly as the discharge capacity of the ready-mix trucks permitted. This practice resulted in a uniform concrete appearance, free of honeycombing and stratification.

Initially, 4,000 square feet of forms were made up into 16 panels, each 14 feet high and 16 feet wide, sufficient to form up a length of wall 128 ft. long. Additional panels were made up as the pouring needs and availability of working space permitted greater progress.

The building for which these foundation walls were built is to be known as the Manhattan Apartments, a project of the New York Life Insurance Company. Its 19-story height is said to make it the tallest concrete apartment house in the United States. The foundation wall constitutes the outside walls of a subsurface garage for the apartment tenants.

General contractor on this project is Cauldwell-Wingate Company of New York. Corbetta Construction Co., also of New York, is contractor for foundation and superstructure concrete. Charles J. Prokop, general superintendent, and Jim Lyttle, project superintendent for Corbetta, collaborated with the author in working out the forming system.

Changes charted in primitive Iran as U. S. engineers begin

Rebuilding A Nation

THE WORLD may soon get its first look at the reconstruction of a nation.

The goal is a standard of living for 17,750,000 people as near to that of western civilization as can be supported by the natural resources which are available to the developers.

The initial price tag is $650,000,000; the time allotted for the first stage of development, is seven years. The raw material is a backward, undeveloped country of 628,000 sq. mi., and the tools are the accumulated knowledge and experience of 11 of the world's finest engineering, management and economic consulting firms. The rewards at stake are tremendous. Not the least of them is a political influence which might cause or prevent another World War.

Specifically, it involves building this nation from the ground. It will entail construction of factories, ports, railroads, irrigation works. But, as a vital corollary, it means a build-up of the nation's basic economy, of the conditions under which its natives work and die.

That's a short run-down of the picture that emerged recently when Overseas Consultants, Inc., announced signing of a third contract with the Iranian Government for consulting services in connection with the latter's national development effort (ENR Oct. 20, p. 25). That contract followed almost four years of study and investigation and three separate, formal reports on what might be done. (ENR Oct. 28, 1948, p. 73). For practical purposes, this contract instituted as a master plan for the seven-year effort a five-volume program completed this year by OCI. Morrison-Knudsen International Corp. made the first.

Blueprint for Point 4

This undertaking, whereunder foreign experts, for the first time on a national scale, are invited to design and supervise the rebuilding and development of a country in such fashion as to affect its very culture, will have a broad impact on the next foreign spending program to be organized by the United States government. There's no connection between the Iranian program and Point 4.

But, aside from the financing, OCI's Iranian blueprint is the bone and muscle of what the United States is understood to be discussing when it describes its Point 4 thinking. (Point 4 is a program set forth last January by President Truman, for the export of American technical ability and knowledge, perhaps assisted by American venture capital, to undeveloped lands.)

There are three bases from which OCI's thinking takes off.

1. National development effort must first be applied near the bottom.
2. Capital is not a substitute for skill or experience.
3. Co-ordination is an essential ingredient of the plan.

Must improve living standards

"Labor," OCI warned Iranian officials, "which is the basic source of every country's prosperity, cannot meet the requirements which will be made upon it from higher levels unless it is well nourished, well housed, well clothed, healthy and properly trained. Unless the men and women who contribute this labor are persuaded that their own efforts in these new directions will produce prompt, tangible and continuous improvements in their conditions of daily life, these new efforts will not be made."

Discussing the widespread need for new skills on the part of the population, OCI went on:

"One very real limitation upon the rate at which Iran's economic program can progress will be the rate at which the necessary skills and experience can be acquired where they are now lacking. This necessity for special skills or knowledge exists throughout the program."

OCI's feelings on the necessity of coordination are put this way:

"Coordination, as we use the term here, does not mean regimentation or excessive planning of details. It means envisioning the kinds of things that must be done together if they are to be done at all, and, at the correct time, taking such steps as are appropriate."

These are not the sole foundations on which OCI builds its plans for the reconstruction and development of Iran. Basic to its proposals are such things as the stimulation of long-term investment by Iranians themselves; the establishment of an adequate, effective tax-levying and collection system; revision of law to permit foreign capital to be invested; revision of the ownership pattern for the new sources of wealth to be developed; and an effective plan for

control of the inflationary tendencies which will be stimulated by the expenditure of $415 million within the country itself during seven years.

"Investments of the wealthy (Iranians)," OCI's report asserts, "are largely in land, revenue-producing real estate, or relatively small privately-controlled businesses. . . . A sense of responsibilty, normal to those answerable for the safety and gainful employment of the investments of others, such as is common to the managements of western industrial enterprises, has not been developed.

"It is not surprising that, in view of the unfamiliarity of wealthy Iranians with modern industrial enterprise, the government has felt impelled to establish its own industrial plants, to develop mines, and to construct the railroad system. . . . One of our strongest recommendations is that the Iranian Government adopt as its long-term policy the transfer of its industrial enterprises and mines to private ownership. . . . And finally, and possibly most important of all, some way must be found to induce the well-to-do Iranian citizens, and there are many of them, to make an investment of their own in the success of the plan."

Discussing the inflationary possibilities on the Iranian economy which could stem from the plan, OCI warns that the program's success might be endangered if care is not taken to cushion domestic spending.

Inflation perils named

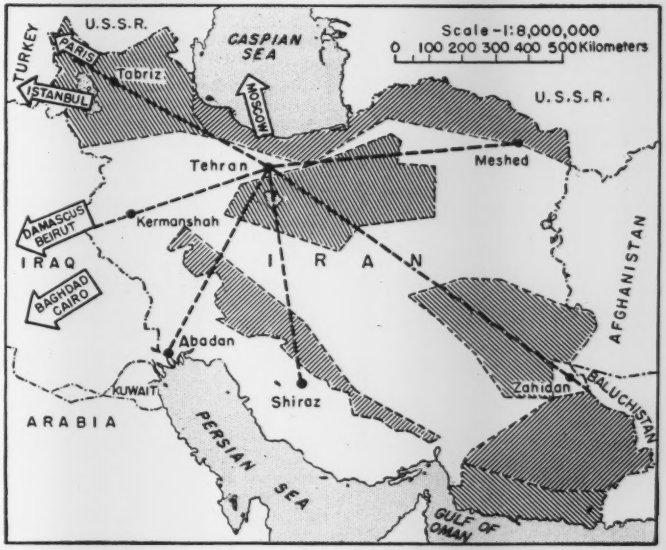
The report cited the conversion of oil royalty payments into Rials (Iran's currency unit), the large annual conversion by Anglo-Iranian Oil Co. of sterling into Rials for operating expenses, and spending on the plan itself as inflationary factors which could vastly increase the cost of the plan. To help avert the effects of these inflationary sources, OCI suggests sale of government-owned real estate, increased production in government-owned factories, diversion of surplus employes to work on the plan itself and eliminating duplicating and unnecessary government expenditures—with savings applied to the program.

One of the most intriguing aspects of Iran's seven-year plan, to the foreign interests that will have to perform much of it, is the financing. Unlike so many proposals for large-scale foreign development, Iran's is neither founded upon the United States treasury nor upon local resources relatively valueless in world markets. The two most notable facts about the plan's financing are these:

1. Iran has tremendously valuable oil deposits, now being exploited under a contract which gives Iran vast usable foreign exchange.

2. All Anglo-Iranian Oil royalties are pledged to the plan during its life.

After the seven years have expired, such oil revenues are assigned to service loan interest and amortization needs arising from the plan. The government is authorized to borrow up to $138,500,000 from the Bank Melli, of Iran, and to borrow elsewhere to the extent needed, including as much as $250 million from the World Bank. Income from any plan developments, after its completion, is assigned to repayment of such borrowings. Anglo-Iranian Oil royalties this year are expected to run somewhat over $50,000,000 in sterling, fully convertible to dollars if need be. In addition, expenditures in Iran by Anglo-Iranian Oil, still another source



AERIAL MAPPING will help lay out air routes, give experts a chance to study the back country for future exploration of mineral resources not now known.

IRAN'S TRANSPORTATION system will include these links at the end of the seven-year plan. Railroads, seaports, roads and airfields are to be built.

of funds, should match the royalties.

What phases of the program are most promising to U. S. engineers and builders? Both on sheer volume of allocated funds and the nature of the work, the programs for transportation and for town improvement and housing are most important.

For transportation, the plan has allocated the largest sum of any single program—$154,159,384.

OCI has recommended for purchase "as promptly as possible:"

Twenty bulldozers; 90 dump trucks; 15 motor graders; 15 grader elevators; 15 portable rock crushers; 15 road rollers; 15 general purpose trucks; 20 mobile air compressors; 2 liquid asphalt sprayers; spare parts for this equipment; miscellaneous materials and equipment such as rails, ties and small cars for tunnel work, wheelbarrows, picks, shovels, dynamite, etc.

Total expenditure for these items was set at $2,000,000.

Pattern varies by programs

This shows the pattern of OCI's recommendations for Iran. They vary widely between programs, of course. But there's business for western equipment makers and for western technologists in many fields. Part of the money will go for local products, labor and administration. Part of it will go for foreign equipment.

Altogether, the road program aims at connecting major ports, cities and producing areas with a network of arterial roads "eight meters wide, with a surface of water-bound macadam six meters wide." After settlement, an asphalt surface would be applied. The program calls for 10,515 miles of road in seven years. Aside from the machinery purchases, the road program has been allocated $72,476,923.

Railroad construction called for by the OCI plan is substantially smaller. Three extensions to the state system begun in 1928 had been programmed by the Iranians. One, from Meshed to Garmsar, near Tehran, has been practically completed, with about $17,200,000 worth of work remaining. This would require $5,200,000 in foreign exchange. There remain 272 mi. of line to complete on the Tehran-Tabriz extension, to cost $37,729,230, of which $4,300,000 would be in foreign exchange. On the Ghum-Kashan extension, there are 345 mi. remaining, in various stages of completion. OCI recommends that it not be completed at this time. Aside from the construction involved, OCI recommends the purchase of $20,233,000 worth of railroad equipment.

POINT 4 PIONEERS

Overseas Consultants, Inc., was organized in June, 1947, at the request of the United States Government. The reason: To make a comprehensive survey of Japanese industries—especially those designated for reparations—and to recommend on what the U. S., as the occupation power, should permit to be done with them.

It was invited to undertake the Iran assignment a year ago last summer, and first made a survey to determine whether a full-scale study was justified, then made the full scale survey reported here. For the second survey, OCI enlisted the services of Sir Alexander Gibb & Partners, London.

Member firms in OCI are:

American Appraisal Co.; Coverdale & Colpitts; Ebasco Services, Inc.; Ford, Bacon and Davis, Inc.; Jackson & Moreland; Madigan-Hyland; F. H. McGraw & Co.; Sanderson & Porter; Standard Research Consultants, Inc.; Stone & Webster Engineering Corp.; and The J. G. White Engineering Corp.

OCI officers are:

John R. Lotz, board chairman; Clifford S. Strike, president; George V. T. Burgess, treaurer; Frank M. Carhart, Robert L. Hamill and Paul Coffman, vice presidents.

Recommendations for seaport work are confined principally to four ports, Khorramshahr, Bandar Shapur, Bushire and Bandar Abbas, all on the Persian Gulf. Minor recommendations are made concerning Caspian ports. Cost of the port program is set at $12,136,307 over the seven years.

OCI has allocated tentatively $12,307,690 for airports, a sum over and above a current expansion program at Mehrabad, the Tehran field, and Abadan. The former is the only international airport in the land. The OCI program calls for lengthening the Mehrabad instrument runway to 8,200 ft. and widening it to 150 ft. A double hangar also is to be built there. Remainder of the funds will be used at airports in other principal cities where conditions are described as "essentially primitive."

Summary of Recommended Allocation of Plan Funds (000)

Public Health	$46,250,184
Education	30,769,230
Agriculture	100,942,584
Water Resources	56,923,076
Meteorology	1,130,153
Surveying & Mapping	9,938,461
Town Improvement & Housing	84,615,384
Transportation	154,159,384
Communications	15,722,430
Industry & Mining	67,791,969
Electric Power	31,169,538
Petroleum	23,246,153
Statistical Organization	3,793,630
Distribution	372,769
Posts and Postal Transport	7,692,307
Total	$634,517,251

Third largest program of the seven-year plan, second only to transportation and agriculture, is town improvement and housing. Allocated to it is a total of $84,615,384. It is subdivided into specific programs for town improvement, low-cost housing, and potable water supplies.

Priority for town improvements goes first to water supply, since no town has a proper piped water system; next to electricity, since in no town is there adequate capacity to meet the demand; third to road construction and surfacing of footpaths, aimed both at helping slum clearance and improving public health; fourth to construction of government and municipal buildings, including markets, hospitals, schools, etc., and last to such items as sewage and drainage systems, parks, river improvement, etc. For town improvement, $15,384,615 has been allocated.

Water standards set

The program for potable water supply has an allocation of $23,076,922. It aims at a minimum of 25 liters daily per person from the public supply, with water for livestock in addition. In rural communities, it is proposed to ally water supply with irrigation systems.

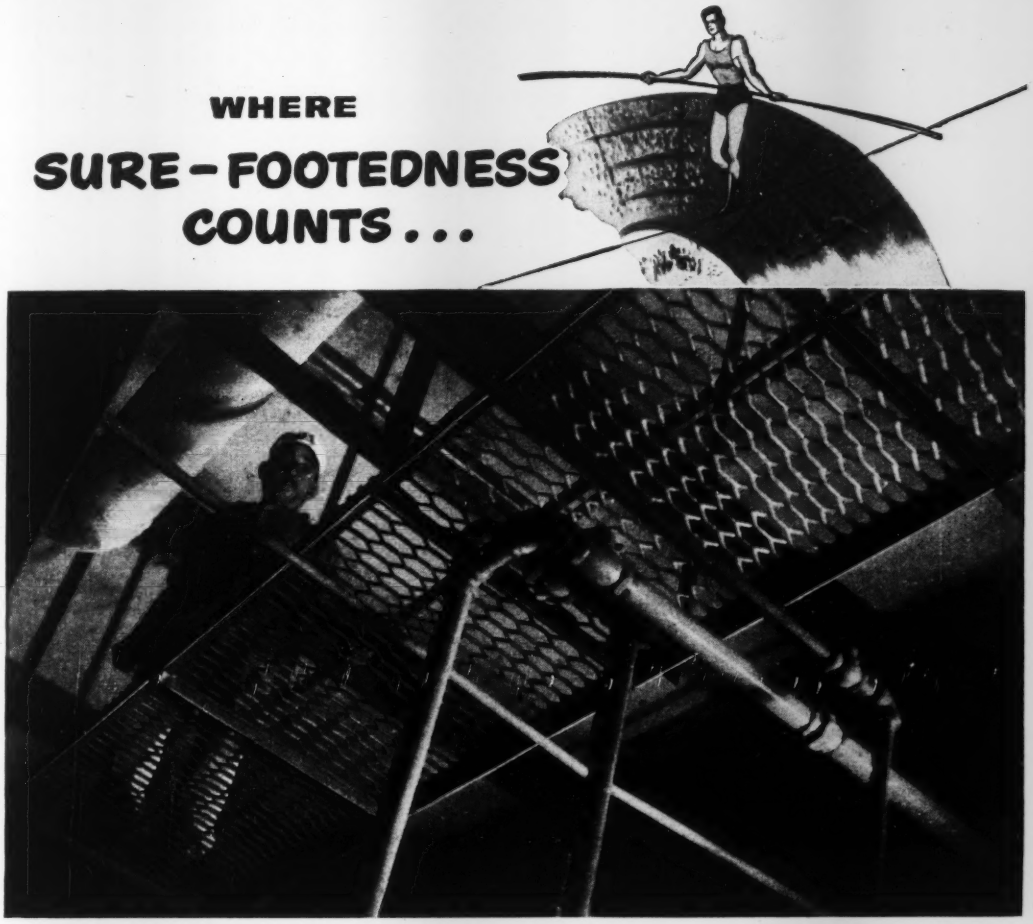
In urban areas, piped distribution to every home is recognized as a long way off; so the immediate program calls for piped distribution to stand-posts at a ratio of one such post for every 500 persons.

Largest allocation in the town improvement and housing program is for housing itself. This gets $46,153,846.

Included in the recommendations are numerous legislative propsals, aimed at holding down land speculation which would push the cost of slum clearance and low-cost housing schemes beyond realizable proportions. Public health implications play a large part in the program as well, on the basis that the public health job which is undertaken can't be carried out if housing for a majority of the population remains at its present level.

WHERE

SURE-FOOTEDNESS COUNTS...



GRATE-X USG EXPANDED METAL FLOOR GRATING

Combines extra safety with maximum passage of light and air

Angular edges grip the shoe soles—protect against slipping. At the same time, the self-cleaning diamond-shaped apertures provide added advantages of through and through visibility and ventilation.

Made from a solid sheet of metal—slit and expanded—GRATE-X is lighter in weight per square foot than the original sheet, permitting the use of lighter, more economical supporting members. Adapts itself readily to curved supports—cuts out easily. Always has dependable load-bearing strength.

Furnished in various weights and metals . . . also in completely fabricated stair treads.

Long popular as the ideal open metal flooring, GRATE-X has many additional industrial applications. Write *today* for catalog. Address Industrial Sales, Chicago 6, Illinois.

U·S·G

United States Gypsum

For Building • For Industry

Gypsum • Lime • Steel • Insulation • Roofing • Paint

BOOK REVIEWS

Power Plant Construction

THE STORY OF BIG CREEK—By David H. Redinger, 182 pp. Angeles Press, 1240 So. Main St., Los Angeles, Calif. $2.50.

"The Story of Big Creek" is a review of highlights in a 37-year construction period during which a chain of hydroelectric plants, mostly high head, was built to successively utilize the energy of water first stored high in the Sierra and ultimately released at low level into the San Joaquin River.

Each of the 26 chapters covers a significent period or phase of the project, citing the difficulties, recording the progress and frequently bringing out humorous incidents. Typical chapter titles are: The San Joaquin & Eastern R.R., Raising Huntington Lake Dams, Florence Lake Tunnel, The Alaskan Dog Team and Stevenson Creek Test Dam.

The author writes entertainingly in the first person because the story is largely a record of his own professional career. He came to the project in 1912, shortly after completing his college training, and remained in progressively more important positions until his recent retirement. For many years he was resident engineer in charge of the entire project. Thus the history of Big Creek is in large measure also the story of Dave Redinger. The combination is a forceful, colorful, well-told tale.

Sewer Ordinance Manual

MUNICIPAL SEWER ORDINANCES—Federation of Sewage Works Associations, 325 Illinois Building, Champaign, Ill. $1.

The manual of practice "Municipal Sewer Ordinances"—third of the series of special manuals—fulfills a need of long standing for authoritative guidance in the regulation of usage of public sewer systems. The 44-page bulletin represents more than three years of effort by the FSWA Sewage Works Practice Subcommittee on Municipal Sewer Ordinances.

Introductory emphasis is given the consequences of inadequate control of use of public sewers so that municipal officials will appreciate the value of a sound sewer ordinance, properly enforced. Various types of regulations are described, with detailed discussion of present practices as set forth in a large number of prevailing ordinances.

Particularly significant is the coverage of policies and recommended practices relating to the admission of industrial wastes into public sewers, for treatment and disposal by the municipality. A logical procedure for evaluating and handling such wastes is presented, with a discussion of limiting values for objectionable characteristics.

A "model" form of ordinance is included to illustrate application of the basic principles of good practice. Suggested permit forms to accompany the "model" ordinance are also offered.

The manual will be of value to municipal officials and attorneys, as well as to engineers, chemists, and others directly concerned with handling of sewage and industrial wastes in municipal sewage works. It is applicable to control of sewer usage in municipalities of all types and sizes.

How to Get Good Lighting

BUILDING FOR DAYLIGHT—By Richard Sheppard and Hilton Wright. 91 pp. Published originally in Great Britain. Available in this country from the Macmillan Co., New York. $5.50.

Each type of building has its particular daylighting problem. In this British book, the requirements for housing, hotels, schools, community centers, factories and offices are examined. Also, the relationship of architectural design to daylighting is illustrated by comparing the current development of various English sites with that of former centuries. Detailed specifications are included for the types of glass to be used in different buildings. And the evolution of English window design is described in a 34-page note by John Gloag.

A Text on Hydrology

HYDROLOGY—By C. O. Wisler and E. F. Brater 419 pp. John Wiley & Sons, New York.

As stated by the authors, this book is intended to correlate information that has appeared in scores of articles over a period of years in literature on the subject and to present the important factors clearly in a single cohesive unit. The bibliography includes voluminous references to authoritative discussions. Primarily intended as a textbook for college use, the book is valuable also to practicing engineers.

The central theme of the book is stream flow. The runoff hydrograph is emphasized, with special attention to its characteristics and peculiarities. Then follow treatment of precipitation, water losses, infiltration, groundwater, floods, and streamflow records. Basic techniques are clearly presented for handling the variety of problems included in hydrology, which focus mainly on a reasonable determination of (1) maximum flood flow, (2) minimum low-water flow, and (3) average yield.

The chapter on groundwater was written by John G. Ferris, district engineer, Ground Water Division, U. S. Geological Survey.

The authors point out that precipitation in the United States is measured at some 8,000 rainfall stations, an average of one station to every 375 sq. miles. Obviously, many intense rainfalls on small areas may go unrecorded.

Flood frequency, though closely related to storm frequency, is affected by the fact that intense storms more often than not fail to synchronize with *minimum* infiltration or water losses. Therefore, the storm that causes a *flood* with a one percent chance of occurrence can be considerably smaller than a *storm* of the same frequency (once in 100 years).

The use of probability methods to predict flood magnitude and frequency is not favored by the authors because runoff records are not sufficiently extensive to ensure reliable results.

The authors present the unit-graph and distribution-graph technique for developing the flood hydrograph that may result from a "design storm," adopting as the critical time of concentration the average period of rise of the distribution graph. The procedure is excellent for design purposes, but seems unwieldy for a plant operator who must predict runoff results at frequent intervals during a current storm of which the complete magnitude and duration are still unknown.

With respect to flood routing through river channels, the authors state that approximate methods are adequate considering the accuracy of basic data, variable stage-discharge relations and other practical difficulties, and refer to a "coefficient method" of procedure which develops dimensionless coefficients that vary with stream pattern and other physical characteristics of the drainage area impossible to evaluate except in a very general way. The reviewer considers such procedure entirely unnecessary and beside the point.

What is required is to determine the relation between flood stage and discharge at various points along the

stream. A direct approach to the problem is recommended, using the "slope-area method" referred to by the authors on the last page of the book, but bearing in mind that flood stages may include a considerable backwater effect from obstructions in the stream which makes useless any determination of the factor "n" in the Manning formula that is derived from experienced stream flows at lower stages.

In their discussion of stream flow the authors have done well to (1) focus attention upon the hydrograph as the integrator of all upstream drainage-basin factors and runoff circumstances, and (2) omit tiresome discussions of stream patterns, vegetation cover, and other generalities which obscure the main issue.

The main issue in any stream flow problem is—just what is the relation between stage and discharge along the stream's right-of-way, and what can be done about it? In the application of the Manning formula or any other flow formula, the factor "n" can be regarded as a dimensionless coefficient of circumstances sufficient for the purpose, and it seems a waste of time to develop other coefficients.—REVIEWED BY A. H. DAVISON, CIVIL ENGINEER, GLENS FALLS, N. Y.

Techniques of Prestressing

PRINCIPLES AND PRACTICE OF PRESTRESSED CONCRETE—By P. W. Abeles. 109 pp. Crosby Lockwood & Son, London, S. W. 7, England. Price 15s. Obtainable through Stechart-Hafner, Inc., 31 E. 10th St., New York 3.

In line with the increasing use of prestressed concrete abroad, European literature on the subject has also been growing. This book is a welcome addition.

Chapters cover such subjects as various methods of prestressing, analysis design and research. Use of partial prestressing is proposed, the concrete being permitted to carry some tension and crack. It appears probable that this will meet opposition from most engineers, for even if there were a pronounced economical advantage, one of the main attractions of prestressed concrete—its ability to act under design loads as an homogeneous, elastic material—would be lost.

The author also describes and discusses prestressing with and without bond with the concrete. However, on the strength of the evidence of bond presented in this book, American engineers will be reluctant to rely on bond alone for anchoring wires stressed to 100,000 psi. or more. Also, the test evidence pointing to certain disadvantages of unbonded prestressing is far from convincing in view of Dischinger's and Haggbom's bridges.

New Engineering Books

LABORATORY MANUAL IN SOIL MECHANICS—By R. F. Dawson. 177 pp. Pitman Publishing Corp., New York, N. Y. $3.25.

STATICALLY INDETERMINATE FRAMEWORKS—Third Edition—By T. F. Hickerson. 202 pp. The University of North Carolina Press, Chapel Hill, N. C. $5.

TREES—Yearbook of Agriculture, 1949—U. S. Department of Agriculture. 944 pp. Superintendent of Documents, Washington 25, D. C. $2.

THE MECHANICS OF ENGINEERING SOILS—By P. L. Capper and W. F. Cassie. 270 pp. McGraw-Hill Book Co., New York 18, and London. $4.

THEORY OF MODERN STEEL STRUCTURES—Vol. 1—Statically Determinate Structures—Revised edition. By L. E. Grinter. 341 pp. The MacMillan Co., New York. $5.

FRAMING OF HIP AND VALLEY RAFTERS—By Max Kurtz. 98 pp. Copies are available from the author care of Kurtz Iron Works, Mineola, N. Y. $6.

INSKIP'S COMPLETE TABLES: Four page arrangement of Squares and Logs; Logarithmic Trigonometrical Funcions, and Tables of Coordinates and Slopes—1949 printing, with card for use in computing circular arcs. Published by Berzinskip, 1769 E. 19th St., Brooklyn 29, N. Y.

REINFORCED CONCRETE—By A. L. L. Baker. 295 pp. Concrete Publications, Ltd. Westminster, S. W. 1. London. 15s. Available through Stechart-Hafner, Inc., 31 E. 10th St., New York 3.

MATHEMATICS DICTIONARY—Revised edition. Edited by Glenn James and Robert C. James. 432 pp. D. Van Nostrand Co., New York 3, $7.50.

Reports and Pamphlets

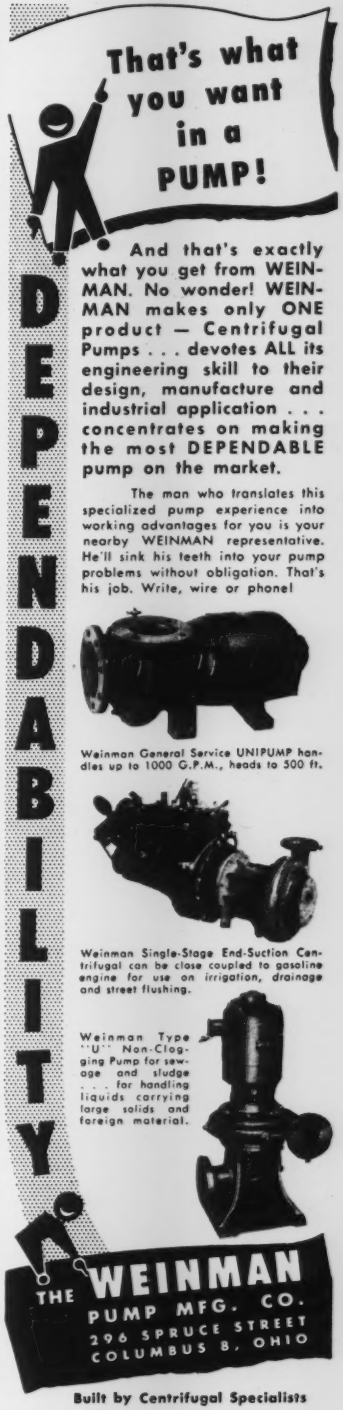
ALPHA COMPOSITE CONSTRUCTION ENGINEERING HANDBOOK. Porete Manufacturing Company, North Arlington, New Jersey.

PROPOSED AMERICAN STANDARD ACOUSTICAL TERMINOLOGY, Z24A. American Standards Association, 70 East 45th St., New York 17, N. Y. $1.

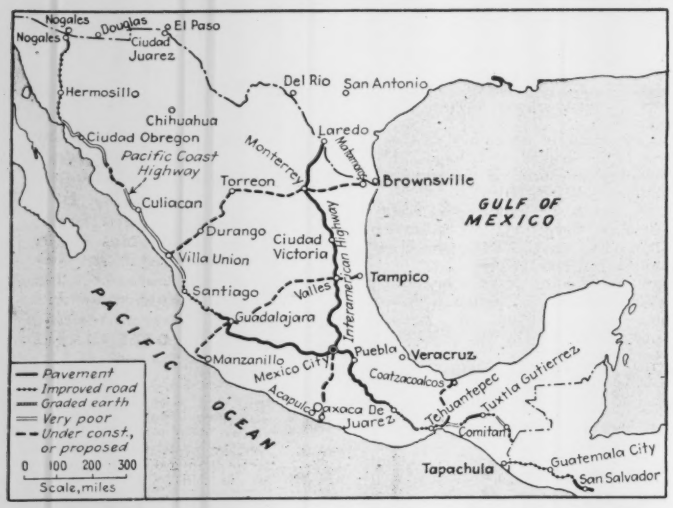
MORTAR BOND CHARACTERISTICS OF VARIOUS BRICK—Publication PB 97122, Office of Technical Services, Department of Commerce, Washington 25, D. C. 25c. Make checks payable to Treasurer of the United States.

TRANSIT FACT BOOK—1949—American Transit Assoc., 292 Madison Avenue, New York 17, N. Y. Copies up to 10 free; over 10 copies 10c. each.

PROCEEDINGS OF THE 1949 BUILDING OFFICIALS CONFERENCE—Report No. 1. Associate Committee on National Building Code, National Research Council, Ottawa, Canada.


That's what you want in a PUMP!
And that's exactly what you get from WEINMAN. No wonder! WEINMAN makes only ONE product — Centrifugal Pumps . . . devotes ALL its engineering skill to their design, manufacture and industrial application . . . concentrates on making the most DEPENDABLE pump on the market.
The man who translates this specialized pump experience into working advantages for you is your nearby WEINMAN representative. He'll sink his teeth into your pump problems without obligation. That's his job. Write, wire or phone!
Weinman General Service UNIPUMP handles up to 1000 G.P.M., heads to 500 ft.
Weinman Single-Stage End-Suction Centrifugal can be close coupled to gasoline engine for use on irrigation, drainage and street flushing.
Weinman Type "U" Non-Clogging Pump for sewage and sludge . . . for handling liquids carrying large solids and foreign material.
DEPENDABILITY
THE WEINMAN PUMP MFG. CO.
296 SPRUCE STREET
COLUMBUS 8, OHIO
Built by Centrifugal Specialists

DEVELOPMENTS ABROAD



Mexican Highways

After 25 years of steady—and extremely expensive—road construction, Mexico may say she has the beginnings of a modern highway system, according to Augustin Garcia Lopez, Mexican Secretary of Public Works and Communications.

"There are at present 16,200 miles of highways—6,200 of which are paved," said Mr. Lopez recently. "That figure may not look very large, but it must be remembered that the extremely difficult terrain makes Mexico's per-mile cost extraordinarily high."

Commenting on the current highway program—which is taking a greater portion of the national budget than any other single enterprise—the secretary said that by 1952 Mexico expects to open four trunk highways radiating from Mexico City, as well as ocean-to-ocean highways and many local roads. Work on the major north-south roads, the Inter-American highway and the West Coast Highway, is already well under way (ENR June 2, p. 23). Another major highway link, the road from Laredo to Mexico City, has been in service for more than 13 years.

Principal cross-country highways planned are: Across the Isthmus of Tehauntepec between Coatzacoalcos and Salina Cruz; across the top of the country between Matamoros and Mazatlan; and a road linking Tampico, Manzanillo, San Luis Potosi, Lagos and Gaudalajara.

Mr. Lopez pointed out that while all these roads and the many others planned will have a certain military significance, their principal objective is economic. He said many Mexican villages and even some sizeable communities now have no communications at all with the rest of the country—other than cattle trails and footpaths.

The problem of bringing these communities—and their agricultural and manufacturing potential—into the general Mexican economy is of major concern to the government. So important is it, in fact, that a Department of Planning and Building of Community Roads was established by Presidential decree in 1947. Under the direction of this department some 100,000 miles of feeder roads are planned—some of them only a few miles in length—to connect communities with main highways, railways and centers of commerce.

Financed in any feasible way—sometimes by private capital—these roads are built under an arrangement by which the federal government provides hand tools and technical management, and helps in defraying costs.

Bridge difficulty

India—One of "Mother Ganges'" traditional rampages has upset plans for a multi-million dollar twin-deck bridge at Mokameh in Bihar province. This season's monsoon rains brought floods that ripped out the banks to make the river two miles wide at the proposed site and create need for several miles of dikes above the crossing. As a result the bridge may be shifted about 50 miles upstream to the provincial capital of Patna.

$43 million ECA funds may go for equipment

New heavy equipment and machinery purchases of up to $43,369,500 may be made in the U. S. by the governments of France, Norway and Turkey, as a result of grants to those countries made recently by the Economic Cooperation Administration. This dollar-figure represents the ECA stake in approximately $75,145,500 worth of construction and "reactivation" to be carried on in electric and mining industries in those nations.

The individual projects shape up like this:

Detailed figures

FRANCE is building a $19.5 million thermal electric power plant at Dechy with $15 million ECA help. All of the specifications and equipment for the Dechy plant will originate in the U. S. Marshall Plan dollars will also be made available to France for the purchase of $16.5 million worth of equipment to increase production of power and improve power distribution. This equipment falls into three categories: (1) Civil engineering equipment of types not made in France, to be used for large scale clearing, excavating and concreting operations. (2) mechanical and electrical equipment which cannot be obtained in France without serious delays. And (3) spare parts for equipment purchased from the United States before the Marshall Plan went into operation.

Help for Turkey

TURKEY anticipates the construction of a new 185-mile transmission line, in which ECA now has a $6,820,000 stake. The overall cost of the project is estimated to be about $9,110,000, which will include transformers and sub-stations.

NORWAY will reactivate plants and equipment at her Sydvaranger iron ore mines, at a cost of about $29,000,000, including $5,014,000 from ECA and $121,000 from non-ECA dollar financing. Equipment to be purchased here includes power shovels, pumps, generators and motors, crushing and grinding machinery, dryers, tractors and other construction, mining and conveying equipment.

(*Continued on page 42*)

A MIXERMOBILE
DEALER IS NEAR YOU

MOBILE ELEVATOR & EQUIP. CO. . . . Mobile, Ala.
EQUIPMENT SALES CO. . . . . Phoenix, Ariz.
STANDARD EQUIPMENT & SUPPLY CO
North Little Rock, Ark.
SHAW SALE & SERVICE CO. . . . . Los Angeles, Calif.
MIXERMOBILE CO., INC. . . . . Los Angeles, Calif.
RHODES & JAMIESON LTD. . . . . Oakland, Calif.
CAPITOL TRACTOR & EQUIP. CO.
Sacramento, Calif.
CONSTRUCTORS EQUIPMENT CO. . . . Denver, Colo.
NEFF-THOMAS MACHINERY CO. . . . . Miami, Fla.
SQUARE DEAL MACHINERY & SUPPLY CO.
Orlando, Fla.
TRACTOR AND MACHINERY CO. . . . . Atlanta, Ga.
INTERMOUNTAIN EQUIPMENT CO. . . . . Boise, Idaho
ADVANCE CONTRACTORS SUPPLY CO. Chicago, Ill.
STEPHENS-JONES, INC. . . . . Des Moines, Ia.
THE VICTOR L. PHILLIPS CO. . . . . Wichita, Kansas
SOUTHERN STATES EQUIPMENT CO.
New Orleans, La.
McCLUNG-LOGAN EQUIPMENT CO. . Baltimore, Md.
HEDGE & MATTHEIS CO. . . . . Boston, Mass.
CONTRACTORS MACHINERY CO. . . . . Detroit, Mich.
CONTRACTORS MACHINERY CO.
Grand Rapids, Mich.
MINNEAPOLIS EQUIPMENT CO. . Minneapolis, Minn.
WATKINS-ALDRIDGE EQUIPMENT CO. INC.
Jackson, Miss.
THE VICTOR L. PHILLIPS CO. . . . Kansas City, Mo.
MID-WEST MIXERMOBILE DISTRS. . Kansas City, Mo.
O. B. AVERY CO. . . . . St. Louis, Mo.
HALL-PERRY MACHINERY CO. . . . . Butte, Mont.
ANDERSON EQUIPMENT CO. . . . . Omaha, Nebr.
MACK TRUCK SALES . . . . . Reno, Nev.
E. H. KLIEBENSTEIN CO. . . . . Ridgefield, N. J.
LIVELY EQUIPMENT CO. . . . . Albuquerque, N. M.
SLADE TRACTOR CO. . . . . Albany, N. Y.
RUPP EQUIPMENT CO. . . . . Buffalo, N. Y.
DRYDEN EQUIPMENT CO. . . . . Dryden, N. Y.
HODGE & HAMMOND, INC. . . . . New York, N. Y.
RUPP EQUIPMENT CO. . . . . Rochester, N. Y.
CREDLE-NOLAN EQUIPMENT, INC. . . Utica, N. Y.
CONTRACTORS SERVICE, INC. . . . Charlotte, N. C.
MYHRA EQUIPMENT CO. . . . . Fargo, N. D.
BODE-FINN CO. . . . . Cincinnati, Ohio
BELL, HORTON M. . . . . Columbus, Ohio
E. W. HARMAN CO. . . . . Columbus, Ohio
MIXERMOBILE CO., INC. . . . . Columbus, Ohio
WILLIAMS COMPANY, THE W. W. Columbus, Ohio
CHAS. M. INGERSOLL CO. . . . . Ricky River, Ohio
THE VICTOR L. PHILLIPS CO. Oklahoma City, Okla.
MIXERMOBILE DISTRIBUTORS, INC. Portland, Ore.
FURNIVAL MACHINERY CO. . . . Philadelphia, Pa.
J. D. EVANS EQUIPMENT CO. . . Rapid City, S. D.
J. D. EVANS EQUIPMENT CO. . . Sioux Falls, S. D.
NIXON MACHINERY & SUPPLY, INC.
Chattanooga, Tenn.
HAWKINS EQUIPMENT CO. . . . . Memphis, Tenn.
NIXON MACHINERY CO., INC. . . . Nashville, Tenn.
J. W. BARTHOLOW MACH. CO. . . . . Dallas, Texas
MID-WEST MIXERMOBILE DISTRIBUTORS
Dallas, Texas
BOEHCK ENGINEERING CO., INC. . Houston, Texas
HEINER EQUIPMENT & SUPPLY CO.
Salt Lake City, Utah
BEMISS EQUIPMENT CO. . . . . Richmond, Va.
COLUMBIA EQUIPMENT CO. . . . . Seattle, Wash.
ANDREWS EQUIPMENT SERVICE. . Spokane, Wash.
M. R. HAMILL, INC. . . . . Charleston, West Va.
HUNTER TRACTOR & MACHINERY CO.
Milwaukee, Wis.

CANADA

MAC MOTORS & EQUIP. CO., Ltd. Calgary, Alberta
INDUSTRIAL SALES (B.C.) LTD. . Vancouver, B. C.
PIGOTT TRUCK & TRACTOR CO.
Winnipeg, Manitoba
LAURENTIDE EQUIPMENT CO. . . . Montreal, Quebec
W. F. FULLER MACHINERY CO.
Regina, Saskatchewan

ALASKA

YUKON EQUIPMENT CO. . . . . Seattle, Wash.

EXPORT

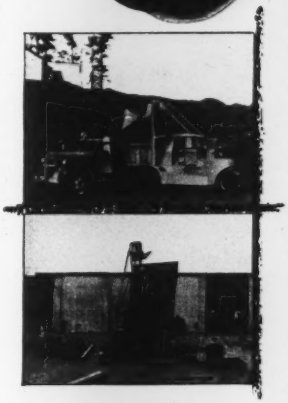
COLUMBIA EXPORTERS, INC. . . . . Portland, Ore.

VERSATILE PROFIT-MAKER

WAGNERMOBILE
MODEL "C"
SCOOP

NEW LOW PRICE
$3,590
F.O.B. PORTLAND

...now with Fluid Drive



MORE PROFITABLE BULK HANDLING! Chrysler Fluid Drive, proved on more than a million cars and trucks, now available with the versatile Wagnermobile Model "C" Scoop. The first in the materials handling field! Smooth power from standing start to highway speeds. Fast maneuverability. Saves time and labor... hoisting, loading or transporting.

ONE MACHINE — 6 BIG JOBS! One man, "quick change" attachments include concrete hopper; scoops in five sizes; lift fork; buck rake; crane boom; track extensions to total of 26 feet. (attachments interchangeable with those on Model "C" Scoop with Planetary Drive).

Wagnermobile Model "C" Scoop with Planetary Drive is suggested for the more severe type of operation.

Top: Fast, Easy Loading. Bottom: Hauling Form.

WRITE TODAY FOR LITERATURE AND ADDRESS OF YOUR NEAREST DEALER

Mixermobile Manufacturers reserve the right to make improvements in design and specifications without notice.

MIXERMOBILE MANUFACTURERS

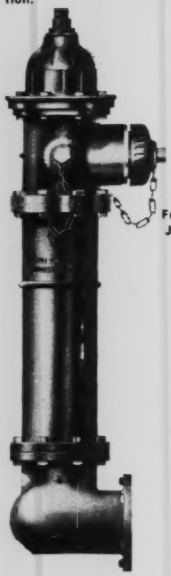
WAGNERMOBILE

6855 N. E. HALSEY STREET • P. O. BOX 5108 • PORTLAND 16, OREGON

M H

HYDRANTS
VALVES
and
WATER WORKS
ACCESSORIES

A. W. W. A. type iron body, bronze mounted with double-disc parallel seat or solid wedge type. Non-rising stem, outside screw and yoke, or with sliding stem and lever. Also furnished hydraulically operated. Square bottom type operates in any position.



M & H furnishes both regular type A.W.W.A. fire hydrants and special Traffic Model designed to yield at the ground line under impact.

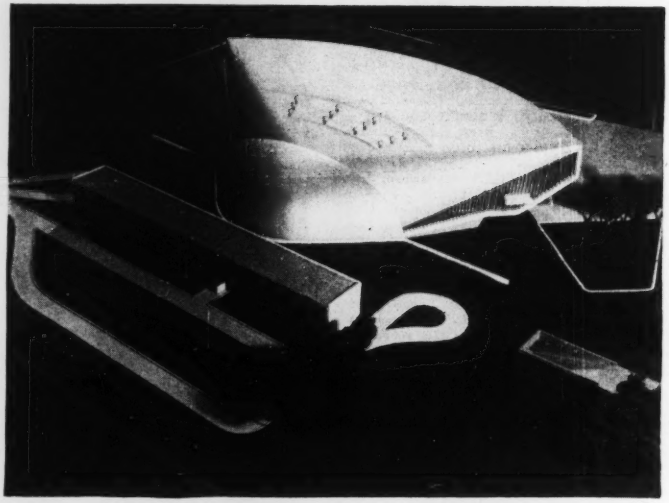
Valves & Hydrants Furnished Mechanical Joint When Desired

M & H PRODUCTS INCLUDE—

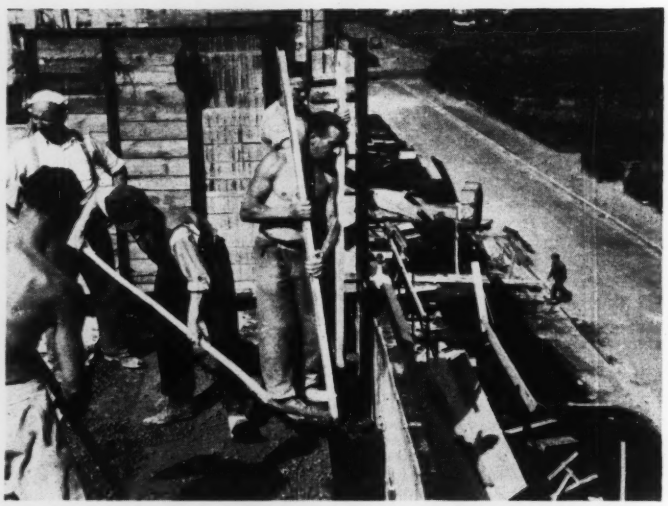
Fire Hydrants
Gate Valves
Tapping Valves
Special Castings
Tapping Sleeves
Check Valves
Floor Stands
Extension Stems
Mud Valves
Flap Valves
Sludge Shoes

M & H VALVE
AND FITTINGS COMPANY
ANNISTON, ALABAMA

(Continued from page 40)

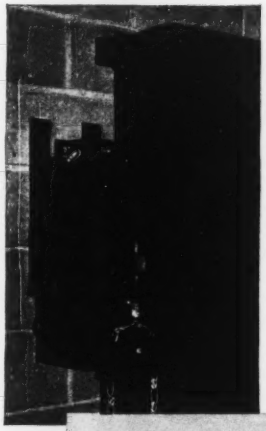


CONCRETE THEATER—A 20,000-seat auditorium, to be built in one of the magnificent parks of the city of Buenos Aires, Argentina, will feature an unusual reinforced concrete structure and stage lighting. The balcony, seating 10,000 will be supported on only 8 columns, cantilevers 66 ft. long and a long hollow beam. The ceiling will consist of a double surface of aluminum, the interior sheet being perforated for projecting light to create different moods in the audience. Scenery will be projected on the elliptical cyclorama—a black perforated metal dome—from behind. Architects are Eduard F. Catalano, Rene Nery, Raul O. Grego, Francisco Degiorgi, A. Gonzalez Gandolfi and F. Lanus.



CONCRETE FROM RUBBLE—Air raids left 55,000,000 cu. yd. of blasted building material in the streets of Hamburg, Germany. Now it is being crushed for use as aggregate in poured concrete walls and floors of rebuilt homes (ENR Apr. 7, p. 22). Nearly 20 percent of the rubble has been removed but the city's need for 200,000 homes yearly is far from being met and other sources of material will have to be found eventually. (Wide World Photo)

Rolling Steel DOORS



MAHON STD. POWER OPERATORS

Manually • Mechanically • Power Operated

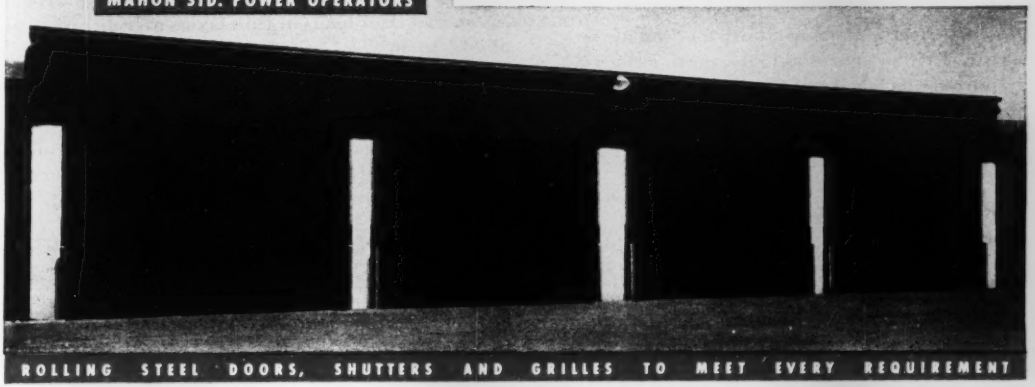
Rolling Steel Doors are today being selected for more openings in a broader variety of building types than ever before. Why? . . . the answer is simple. The permanence of all steel construction means a lifetime of trouble-free service . . . smooth, rapid vertical action requires a minimum of space adjacent to and above the opening. In Mahon Rolling Steel Doors you get the latest developments in doors of this type . . . more compact and more practical operating devices, curtains made up of interlocking slats of Stainless Steel, Aluminum, or tight-coated Galvanized Steel scientifically cleaned, phosphated, and coated with high temperature oven baked rust inhibiting enamel prior to roll-forming. These, and many other desirable features that characterize Mahon Rolling Steel Doors merit your consideration. See Sweet's for complete information or write for Catalog No. G-49.

THE R. C. MAHON COMPANY

Detroit 11, Michigan • Western Sales Division, Chicago 4, Illinois

Representatives in All Principal Cities

Manufacturers of Rolling Steel Doors, Grilles, and Underwriters' Labeled Rolling Steel Doors and Fire Shutters; Insulated Steel Walls; Steel Deck for Roofs, Partitions, Walls, Acoustical Ceilings, and Permanent Concrete Floor Forms.



ROLLING STEEL DOORS, SHUTTERS AND GRILLES TO MEET EVERY REQUIREMENT

Mahon Power Operated Rolling Steel Doors recently installed in four double truck openings in a shipping entrance at American Metal Products Company's plant, Detroit, Michigan.

MAHON

3rd C TOURNAPULL

New runways, taxi strips, drainage and parking areas for expansion of the Wayne Major Airport, near Detroit, Mich., require approximately 1,000,000 cu. yds. of excavation. G. F. Taft, of Northville, has the contract . . . and has the lowest-net-cost answer on his extensive grading job.

"Cut finish-grading costs 50%"

After using a fleet of bottom-dump hauling units for a year, Taft switched to high-speed, rubber-tired Tournapulls last April for final grading. He moved in 2 new, electric-control "C's" . . . and reports that "on finish-grading, our costs have been cut one half." That's not all . . .

"Finest machines ever owned"

He adds that in their first 2 months of operation, "the 2 C Tournapulls finish-graded 604,912 sq. yds., and moved 75,000 cu. yds., with only 28 hours downtime. They're 88% efficient . . . the finest we've owned or used." As a result, Contractor Taft bought another C Tournapull, making a total of 3 "C's" in his fleet.

9000' cycle every 10 minutes

Material on the Wayne Major Airport is mostly sand, clay and topsoil. Although practically all the work consists of thin cuts and shallow fills, Taft's Tournapulls still maintain good production for finish-grading. The "C's" load 10 pay yards of sandy topsoil in 45 seconds to 1 minute . . . spread their loads in thin layers over distances of 100′ to 300′ in 15 to 20 seconds.

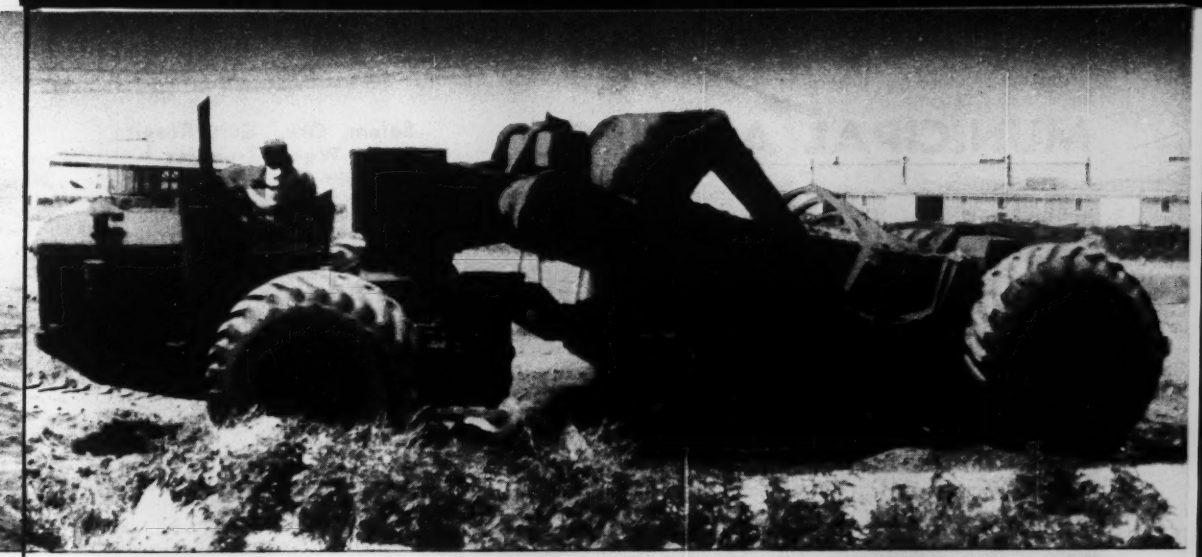
On a 4500′ 1-way haul, each rig makes a round trip every 10 minutes . . . delivers an average of 5.5 loads an hour. Steady Tournapull performance like this, 14 hours a day, is getting the work done, on schedule, at lowest-net-cost-per-yard.

Take a look at savings possible on your jobs with C Tournapull's 20 m.p.h. speed on giant 21.00 x 25 tires . . . 150 h.p. pull . . . power-proportioning differential gives 4 times the power to wheel on firmest footing . . . and easy, finger-tip electric controls. Write, or ask your LeTourneau Distributor for job-proved facts and figures TODAY.

Write: **R. G. LeTOURNEAU, INC., PEORIA, ILL.** *for complete C Tournapull information*

LET

NAME..... TITLE.....
COMPANY.....
STREET..... CITY..... STATE.....
Type work to be handled:.....
Also interested in: ☐ 16-ton, rear-dump C Tournarecker ☐ 25 m.p.h., 7-yd. D Tournapull ☐ 19 m.p.h., rubber-tired Super C Tournadozer



for *G. F. Taft* ON 1,000,000-YD. AIRPORT CONTRACT

Tournarecker-Trademark Tournapull, Tournadozer-Trademark Reg. U. S. Pat. Off. R168

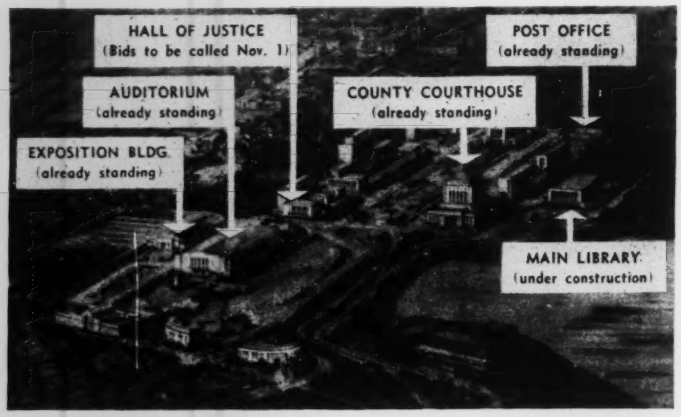
LETOURNEAU PEORIA, ILLINOIS

JOB-PROVED Over 6300 Built and Shipped

TOURNAPULLS

MORE YARDS PER HOUR WITH RUBBER-TIRED POWER

MUNICIPAL AFFAIRS



OAKLAND CIVIC CENTER—In center of this sketch, showing projected and standing buildings of the Civic Center of Oakland, Calif., is an architect's drawing of the $2,000,000 Hall of Justice for which bids will be called in November. Sixteen buildings eventually will comprise the center on the shores of Lake Merritt. Already standing are the county courthouse, school administration building, U. S. post office, auditorium, and the exposition building. Under construction by Stolte, Inc., is the $1,214,864 main library to be completed by mid-1950. Other proposed structures include a state building, probably the next to be constructed, city hall, civic arena, and opera house.

New Highways and Transit Planned for Detroit

The Rapid Transit Commission of Detroit, Mich., has presented the city with recommendations for an augmented system of expressways and an electric rapid transit system which would cost $338-million.

The major proposal called for a 15-mile expressway running the length of Grand River Ave., the city's downtown-to-northwest artery. A center mall running along the expressway would carry electric 12-car trains which could make the trip in 23 minutes—about 6 minutes less than driving time. Cost of this section of the plan is estimated at $165-million and could be completed by 1956, the report states.

The next step would be extension of the north-south John Lodge Expressway, now under construction, to a point six miles from downtown where it would join Woodward Ave., Detroit's main north-south street. Rapid transit trains in a center mall are proposed for this new highway as well.

The report points out, however, that since the first section of the Lodge highway is being built without a center mall, a subway will be necessary to carry trains along this part of the route. Estimated costs of this section of the project have been set at $102-million with completion possible for 1960.

The report also recommends extension of the Edsel Ford east-west highway completely across the city to the eastern limits. In addition, it proposes that an additional expressway be built running north-south on the east side of the city, at a cost of more than $60-million.

Financing plans

Financing of the project would be done by means of bonds pledging the revenue of the rapid transit system, plus revenue derived from present city transportation operations, the commission report maintains. The group is confident that the bonds could be serviced out of net earnings of the rapid transit system alone. Trains would be air-conditioned and consist of twelve 64-seat cars. Speed could be up to 60 mph.

This third in a series of Rapid Transit Commission studies on relieving traffic conditions in the city cost Detroit $100,000, including $75,000 for the services of Thomas Conway, Philadelphia transit expert. Two previous ones were largely abandoned by city planners.

Salem, Ore., Gets Respite In Its Water Troubles

A notice of appeal to the Oregon Supreme Court has served to stay execution of a decree enjoining the city of Salem from diverting to municipal use more than 22-cfs. of water from the North Santiam River.

In a decree last August in a case against the city involving prior rights to waters of the stream, Judge Charles Combs fixed Oct. 1 as effective date for the permanent injunction. On that date, due to lack of the usual September rains in the area, the river mark was below that allowed under the decree, so that the 22 cfs. allowed the city was encroaching on priorities specified by the court.

The appeal, which automatically stays execution of the decree, saved the city from a water shortage, and allows the city time to push plans for augmenting its water supply from other sources.

Quick Paving

On a recent Sunday, resurfacing of six blocks along Fifth Ave., New York City, from 51st to 57th St. was carried out in less than 12 hours as the entire crew of the asphalt plant of the Manhattan Borough President's office was pressed into service.

Under ideal weather conditions, six great rollers, nine asphalt trucks and 150 men did the job before an appreciative crowd of church-goers and others. The roadbed was raised 2 in.

Although this was one of the biggest undertakings of its kind ever started and finished in a single day, prior to the actual resurfacing, men toiled for ten nights adjusting steel frames and cast iron manhole heads without interfering with normal traffic, while utility crews raised power, steam and communication lines to the higher grade necessary for fitting on the new crown.

Parking Meters

U.S. motorists put more than $40,000,000 into city parking meters last year. In Sacramento, Calif., 2300 meters brought in $231,000; Rochester, N. Y., with 2,000 meters took in $127,000.

Although meters are in successful use in so many cities, New York City has just got ready to try them. Mayor O'Dwyer has announced that before the end of the year some parking meters in special localities will be in operation on an experimental basis. The fee may be 10 cents an hour.

(*Continued on page 50*)

Public works construction is financed by the taxpayer's dollar. Construction by contract is the best way to assure the taxpayer that his dollar is economically spent. Here are the reasons why:

1. **GUARANTEED COST** . . . Cost of the project is guaranteed before construction starts.

2. **GUARANTEED QUALITY** . . . Quality is guaranteed in accordance with plans and specifications.

3. **COMPLETION ON SCHEDULE** . . . The general contractor has the financial incentive to complete the project on schedule.

4. **FREE AND OPEN COMPETITION** . . . Lowest possible cost is secured through free and open competition between competent general contractors.

5. **PROPER PLANNING**. . . The detailed planning required by skilled architects and engineers before bids can be taken assures a properly planned project.

6. **CENTRALIZED RESPONSIBILITY**. . . The contract method centralizes responsibility for construction in the general contractor for maximum efficiency.

7. **NORMAL BUSINESS CHANNELS** . . . Experience has demonstrated repeatedly that the construction industry through its normal channels can fulfill public needs more economically and more rapidly than is possible by any other means.

Since its inception 30 years ago, THE ASSOCIATED GENERAL CONTRACTORS OF AMERICA has maintained an unceasing effort to give the construction-buying public the most for its construction dollar.

To the Contract Method of Construction the 5,300 general contractor members of THE ASSOCIATED GENERAL CONTRACTORS OF AMERICA, performing more than 80% of the nation's contract construction, bring Skill, Integrity and Responsibility—the result of long years of experience in their field.

In the hands of these contractors the taxpayer's dollar brings the greatest return in construction.

AMERICA PROGRESSES THROUGH CONSTRUCTION—
CONSTRUCT BY CONTRACT

THE ASSOCIATED GENERAL CONTRACTORS OF AMERICA · REG. U.S. PAT. OFF. · SKILL · INTEGRITY · RESPONSIBILITY

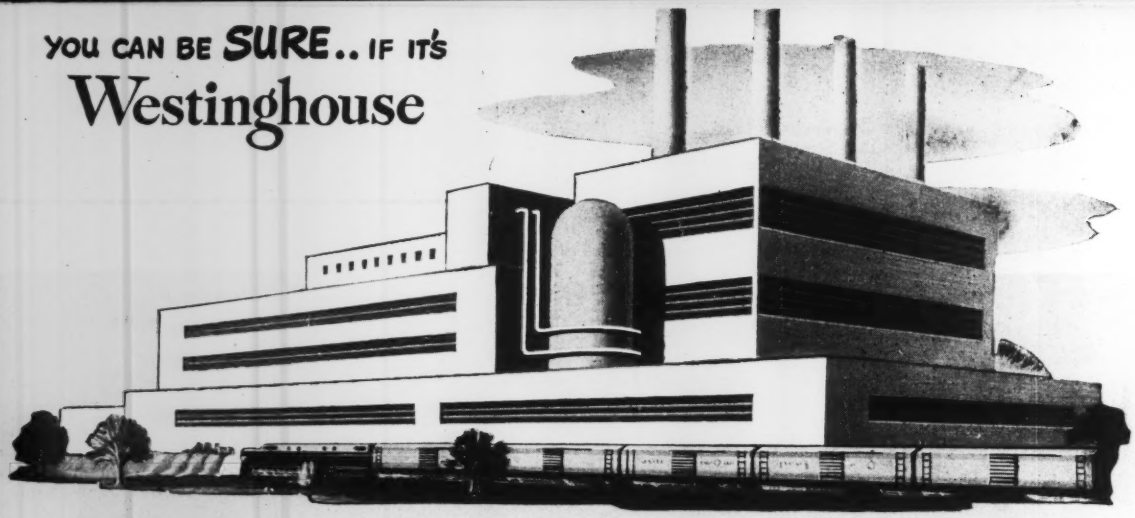
The ASSOCIATED GENERAL CONTRACTORS of AMERICA, Inc.

More than 100 Chapters and Branches throughout America
National Headquarters—Munsey Building—Washington 4, D. C.

SKILL, INTEGRITY, RESPONSIBILITY IN CONSTRUCTION OF BUILDINGS, HIGHWAYS, RAILROADS, AIRPORTS, PUBLIC WORKS

YOU CAN BE **SURE**.. IF IT'S

Westinghouse



Construction and Building Equipment

Welding Equipment

Floodlighting

Freight Elevators

Motors and Control

Water Coolers

Passenger Elevators

Heating and Ventilating Equipment

Air Conditioning Equipment

Forced Fans

Fly Ash Control

Compressors

Fume Exhaust Systems

Speed Heaters

Air Blenders

Roof Vane Ventilators

Unit Heaters

Precipitron®

Unitaires

Industrial Heating

Induced Fans

Ventilating Fans

Stokers

Lighting Equipment

Office Lighting Equipment

Vapor-tight and Dust-tight Luminaires

High Bay Luminaires

Industrial Lighting Equipment

Silvered Bowl Diffusers

Lamps

Street Lighting

Power Distribution Equipment

Unit Substations

Panelboards

Meters and Instruments

Ignitron Unit Substations

Safety Switches

Control Centers

Dry Type Transformers

Power Centers

Load Centers

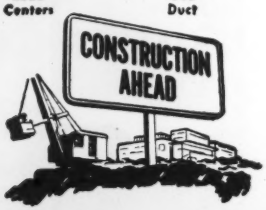
Bus Duct

Power Transformers

Capacitors

Mechanical Drive Turbines

AB-1 Circuit Breakers



*Reg. U. S. Trademark

Everything ELECTRICAL

FROM ONE SOURCE

For industrial construction projects, Westinghouse offers one source—one responsibility—for everything electrical. No matter what your part in the project may be, you can benefit from this fact.

Architects and engineers: We can help you develop the most efficient ways to distribute, control and utilize electric power. Our engineering specialists have broad experience covering all types of applications.

Contractors and builders: Simplify your buying procedures by ordering all electrical equipment and supplies from Westinghouse. Our organization is geared to give you prompt delivery for integrated installation.

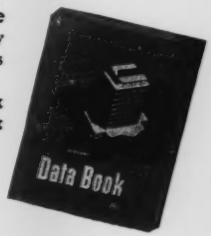
Owners and operators: You get top performance from our electrical equipment because we co-ordinate the design and manufacture of related apparatus. And our nationwide chains of Renewal Parts Warehouses and Manufacturing and Repair Plants provide unmatched maintenance service.

When you have CONSTRUCTION AHEAD . . . whether industrial, commercial or residential . . . call your nearest Westinghouse District Office or Distributor for full information. Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pennsylvania. J-94794

Practical, Easy-to-Use Buying Data

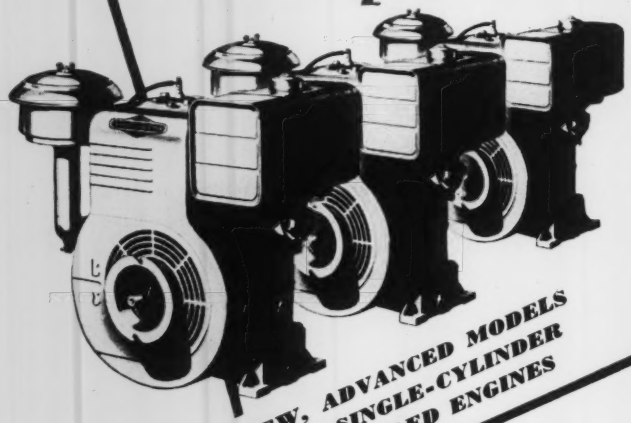
This 362-page book contains detailed information on Westinghouse products for the Construction Industry. It was designed specifically to meet the requirements outlined by Architects and Engineers themselves.

Industry-wide distribution has already been made. If you do not already have your copy, ask your nearest Westinghouse District Office to send you B-2161-D.



Westinghouse

From Air-Cooled Power Headquarters



. . . 3 NEW, ADVANCED MODELS OF 4-CYCLE, SINGLE-CYLINDER AIR-COOLED ENGINES

Compact — powerful — in brilliant modern design — incorporating many important improvements — these new Briggs & Stratton models are perfected products of the world's largest builders of 4-cycle air-cooled single-cylinder engines, resulting from an experience record spanning more than 30 years and a production record of more than 4 million engines.

These new engines set new standards of value, dependability and performance as "preferred power" for machines, tools and equipment used in industry, and construction, by railroads and on farms.

Complete technical information is available on these new Briggs & Stratton single-cylinder 4-cycle air-cooled gasoline engines:

MODEL "9" 3.1 H.P.
MODEL "14" 5.1 H.P.
MODEL "23" 8.25 H.P.

BRIGGS & STRATTON CORPORATION, MILWAUKEE 1, WIS., U.S.A.

Municipal Briefs

Large Paving Program—Mobile, Ala., is going to pave 100 miles of streets. City Commissioner Charles Baumhauer said that this work would be under a $7,000,000 program. Half would be financed by the Bankhead vehicular toll tunnel beneath the Mobile River. The remainder will come from assessments against abutting property owners. There are about 170 miles of unpaved streets.

New Superhighway—Ohio highway department plans call for a new 4-lane highway on the 12-mile stretch between Dayton and Xenia, at an estimated cost of about $7,000,000, to be shared by the state and federal governments.

Tampa's No. 1 Project—Greeley and Hansen, Chicago, who planned and designed the $13,000,000 master sewer system of Tampa, Fla., have been engaged by the city to supervise construction.

Anti-pollution Work—The Kentucky State Board of Health has served notice on the Louisville & Jefferson County Metropolitan Sewer District, the Campbell-Kenton County Sanitation District No. 1, and the cities of Ashland, Cattlettsburg, Maysville, South Port Mitchell, Carrollton, West Point, Owensboro, Henderson and Paducah to take steps within a year to correct their pollution of the Ohio River by ceasing to dump raw sewage into the stream.

Housing Policy—The Durham, N. C., city council has adopted a policy which requires future developers of large-scale housing projects to furnish their own engineering service and to install their own utilities. Details are: Developers shall furnish their own engineering service by a registered engineer and install their own utilities; the city will furnish all engineering data to enable the private engineer to design his individual system; preparation of development system plan of utilities by developer's engineer; approval of system plan by city; contract between the city, county and developer to guarantee payment of service charge to city where development is outside city limits; preparation of detail construction plans by developer's engineer and approval of same by city, all original tracings to be property of city; city inspection of work at developer's expense; acceptance of work by city based on good workmanship and conformity to approved plans as reported by inspector, and city to own all utilities thus installed.

UNIT PRICES BID BY CONTRACTORS

Monolithic concrete storm sewer, Omaha, Nebr.

A low bid 11¼ percent under the engineer's estimate featured the bidding of the Benson storm sewer at Omaha, Oct. 4. With dimensions up to 12 ft. and walled up openings for future connections up to 6 ft., bids were based on monolithic construction. The Chamber of Commerce industrial committee argued because alternate bids on precast pipe had not been taken but bids were not held up.

E. W. Woodridge, city engineer, Omaha is in charge of project.

The contractor furnishes all materials. Both rail and highway transportation facilities are available. Wage rates range from $2 to $2.45 for skilled and $1.25 for common labor.

With 6 bidders from 4 states, the high was 40 percent above low bid. The three lowest bids were within a 5 percent range and all below the engineer's estimate of $1,200,000.

1. Santucci Const. Co., Skokie, Ill. (Cont.) $1,062,343
2. Earl W. Baker & Co., Oklahoma City 1,078,500
3. Peter Kiewit & Sons Co., Omaha, Nebr. 1,176,998

Items	Quantity	Unit Prices 1	2	3
Reinf. concr. circ sewer 7′ int. diam. lf	732.7	$34.00	$50.00	$65.00
8′ lf	989.3	48.50	60.00	75.00
10′ lf	1,274.1	92.00	75.00	90.00
11′ lf	4,053	108.00	100.00	100.00
12′ lf	893	145.00	134.00	140.00
In tunnel, 12′ lf	90	255.00	420.00	260.00
Reinf. concr. twin box sewer 7′–6″ x 7′–6″ int. diam. lf	1,715	125.00	142.00	155.00
Reinf. concr. funnel sect. int. diam. 7′ to 8′. lf	20	67.00	80.00	100.00
8′ to 10′ lf	20	90.00	95.00	120.00
10′ to 11′ lf	20	143.00	120.00	150.00
11′ to 12′ lf	20	146.00	150.00	230.00
12′ int. diam. to 7′–6″ x 7′–6″ int. diam. (Twin Box) lf	20	198.00	180.00	270.00
Reinf. concr. outfall. sect ls	.....	3,665.00	7,000.00	21,000.00
Stl. sht. piling ton	42	300.00	170.00	200.00
Riprap sy	60	9.00	6.00	8.00
Timber piling vert ft	60	3.00	4.00	5.00
Spec. type concr. manholes (27 only) vert ft	280	23.00	43.00	35.00
Stand. type br. or concr. man. (1 only) vert ft	13	25.00	30.00	35.00
Remov. Headwall; exist. br. sewer and reconstr. manhole ls	.....	2,500.00	1,750.00	3,000.00
Lateral storm drain connect., 36″ lf	8	150.00	30.00	40.00
Open. for future sewer connect. (walled up)				
48″ diam. ea	1	50.00	110.00	100.00
54″ diam. ea	1	75.00	140.00	120.00
66″ diam. ea	1	100.00	210.00	150.00
72″ diam. ea	2	150.00	250.00	140.00
Slant connect. (2′ long) 12″ diam. ea	21	10.00	40.00	18.00
21″ diam. ea	4	15.00	70.00	25.00
30″ diam. ea	1	25.00	100.00	40.00
Street inlet type B ea	2	225.00	320.00	700.00
Headwall, type A, 24″ ea	7	250.00	370.00	600.00
30″ ea	1	285.00	460.00	750.00
36″ ea	4	345.00	550.00	900.00
42″ ea	1	440.00	710.00	1,000.00
48″ ea	1	455.00	770.00	1,200.00
60″ ea	1	800.00	1,030.00	1,800.00
Headwall, type B ea	7	50.00	85.00	400.00
Headwall connection, 12″ lf	36	5.00	3.70	10.00
15″ lf	44	6.00	4.70	12.00
18″ lf	40	7.00	5.70	13.00
24″ lf	204	11.00	7.90	15.00
30″ lf	24	15.00	10.20	20.00
36″ lf	134	18.00	12.80	25.00
42″ lf	24	20.00	15.10	30.00
48″ lf	12	25.00	18.80	40.00
60″ lf	76	65.00	27.70	50.00
Iron castgs. (14 stand. M H ring & cover, 13 circr. grate ring & cover) lb	11,643	.12	.12	.30
Steel castgs. (2 type B inlet grate & frame) lb	4,692	.22	.25	.40
San. sewer crossgs. (11 only) cy	130	35.00	46.00	100.00
Remov. blkhds., exist. sewer ls	.....	75.00	300.00	500.00
Addnl. concr. cl. A cy	20	25.00	47.00	50.00
Cl. B cy	20	20.00	44.00	20.00
Clear. & grub. ls	.....	100.00	2,000.00	5,000.00
Rock excav. cy	10	18.00	10.00	5.00
Addnl. earth excav. cy	100	3.50	3.60	4.00
Remov. exist. struct ls	.....	350.00	7,000.00	2,000.00
Addnl. bkfl. Matl. cy	100	1.00	3.40	4.00
Port. cmt. for grout sacks	100	1.25	4.00	3.50
Grt. pipe (1½″ diam. with fit) ea	40	.50	3.00	3.00

FlameZel TARPAULINS
PREVENT COSTLY FIRES

Immediate Delivery from These Distributors

NEW ENGLAND
Hodge & Matthels Co.
Parker-Danner Co.
NEW YORK
Drennan Steel Products Corp., Syracuse
Keystone Builders Supply Co. Inc. Rochester
Mahoney-Clarke, Inc., New York City
Stillwell Supply Corp., Long Island City
Trevor Corp., Buffalo
R. B. Wing & Son Corp., Albany
NEW JERSEY
Dale & Rankin, Inc., Newark
WASHINGTON, D. C.
Hudson Supply & Equipment Co.
MARYLAND
General Supply & Equip. Co. Inc. Baltimore
NORTH CAROLINA
Contractors Service, Inc., Charlotte
VIRGINIA
Rish Equipment Co., Richmond
Rish Equipment Co., Roanoke
WEST VIRGINIA
Rish Equipment Co., Charleston
Rish Equipment Co., Clarksburg
PENNSYLVANIA
Austin Supply Co., Inc., Philadelphia
Dravo-Doyle Co., Pittsburgh
OHIO
Flack Equipment Co., Dayton
Rish Equipment Co., Cincinnati
The W. T. Walsh Equipment Co., Cleveland
MICHIGAN
Contractors Machinery Co., Grand Rapids
R. G. Moeller, Detroit
WISCONSIN
Prime-Best, Inc., Madison
Prime-Best, Inc., Milwaukee
MINNESOTA
Minneapolis Equipment Co., Minneapolis
SOUTH DAKOTA
Pecaut Industrial Supply Co., Sioux Falls
NEBRASKA
Anderson Equipment Co., Omaha
IOWA
Harry Alter & Sons, Davenport
Pecaut Industrial Supply Co., Sioux City
ILLINOIS
Clark & Barlow Hardware Co., Chicago
Becker Equipment & Supply Co., Chicago
INDIANA
Standard Equipment & Supply Corp., Hammond
Reid-Holcomb Co., Indianapolis
Wolf Tent & Awning Co., Fort Wayne
MISSOURI
Brown-Strauss Corp., Kansas City
Machinery & Supplies Co. Inc., Kansas City
The Victor L. Phillips Co., Kansas City
Allied Construction Equipment Co. St. Louis
LeRoy Tent & Awning Co., St. Louis
MISSISSIPPI
Contractors Material Co., Inc., Jackson
LOUISIANA
Pelican Well Tool & Supply Co., Shreveport
TEXAS
J. E. Ingram Equipment Co., San Antonio
OKLAHOMA
Mideke Supply Co., Oklahoma City
Leland Equipment Co., Tulsa
Tulsa Equipment Co., Inc., Tulsa
The Victor L. Phillips Co., Oklahoma City
COLORADO
Western Machinery Co., Denver
CALIFORNIA
Industrial Equipment Co. of Southern California, Los Angeles
Standard Machinery Co., San Francisco

COST VERY LITTLE MORE THAN ORDINARY TARPS
FlameZel
Flameproofed by WenZel
TARPAULINS

Manufactured by
H. WENZEL TENT & DUCK CO.
ST. LOUIS 4, MO.

EDUCATION and RESEARCH

Experimental Wall

An experimental masonry wall faced with over 2,000 specimens of stone from 47 states and 16 foreign countries has recently been erected at the National Bureau of Standards, Washington, D. C. It will be used for the study of all phases of the weathering process on numerous varieties of stone as an aid in developing more reliable laboratory methods for predicting durability. The complete investigation, which is being conducted by D. W. Dessler and R. E. Anderson of the bureau's building stone laboratory, will require many years, but some parts of the study will yield results in a comparatively short time. The wall is a cooperative project initiated by the bureau and the American Society for Testing Materials. Several other organizations, including producers of stone, have cooperated by supplying materials or advice.

The wall was designed so that a number of problems connected with the weathering of building stone could be studied in the one structure. These include permanence of color, discoloration, effects of combining different types of stone, waterproofing, durability, and dimensional stability. Several special construction features were incorporated to facilitate the study of these properties. For example, the mortar joints were made wider than usual for ashlar masonry so that individual blocks can be removed for examination when desirable. Construction was done by contract with Louis Perna & Sons, Inc., of Washington, under the direction of Rosa Amoroso.

Clarifying Building Codes

One of the principal objectives of the building inspectors' conference, sponsored by the school of civil engineering and to be held Feb. 26 through Mar. 1 at Purdue University, will be development of techniques to help inspectors better present building codes to the people with whom they deal. The purpose is to help inspectors teach the public true purposes of building codes.

It is very often a difficult task for an inspector to convey to the builder the idea that codes actually increase the utility and value of property. So far, building inspectors have received little or no assistance in coping with such problems. It is thought that codes will become more effective as officials and inspectors are able to effect a more universal acceptance of them.

While public relations will receive special treatment certain technical aspects of the whole inspection problem will be included in the conference. The specific subjects to be included in the program will be selected from a wide range of problems which are being submitted to the committee for consideration. The general classification of problems will be building, sanitation, and electrical inspection.

"Great Little" House

The Engineering Experiment Station of Louisiana State University offers its "Great-Little" house as a contribution to the solution of the cost problem of housing construction. This two-bedroom house is of concrete and concrete masonry construction. Its cost is around $5,000. Some of its features are: A maximum amount of closet and storage space; trussed rafter roof construction, which means no interior bearing walls (a saving of about 16 sq. ft. of floor area and considerable labor); maximum ventilation and light; overhanging eaves to control summer sun and keep out the rain; six-inch concrete block painted inside and out (waterproof paint) saves money and floor space; aluminum roof and windows requiring no maintenance; construction of roof makes it comparable in price to cheaper roofs; aluminum reflects up to 90 percent of the sun's rays—especially desirable in warm climates; minimum number of interior and exterior doors; screened-in porch in summer, providing a more comfortable living and entertaining area; and utilities located for economy.

Faculty News

William Spannhake has been added to the staffs of Armour Research Foundation and the graduate school of Illinois Institute of Technology as senior research scientist and adjunct professor. One of his major accomplishments has been the successful application of theoretical hydrodynamics to hydraulic machinery.

Hugh Campbell Wolfe, chairman of the Association of New York Scientists and the Federation of American Scientists, has been appointed professor and head of the physics department at Cooper Union School of Engineering, New York City.

CLARENCE J. VELZ, head of the department of civil engineering at Manhattan College since 1938, has taken over the newly established department of public health statistics, University of Michigan. Prof. Velz taught sanitary engineering courses at Manhattan and was actively engaged in river pollution consulting work and research. A University of Minnesota graduate, he has a graduate degree in public health from Columbia University. He has long been an advocate of the statistical method and its many applications to hydrology and sanitary engineering.

Capt. John C. Gebhard (C.E.C.), U. S. N., retired, who supervised the construction of the U. S. Naval Training Center at Sampson, N. Y., and other important, high-speed building projects for the Navy during World War II, has joined the faculty of Cornell University's school of civil engineering. A Cornell graduate, 1919, Captain Gebhard retired this year after a 28-year career in the Navy's Civil Engineer Corps. He has been named an assistant professor of civil engineering at the university. In addition to the $50,000,000 project at Sampson, which was completed on a six-month schedule, Captain Gebhard directed the wartime construction of airfields, docks and a submarine base in Puerto Rico and a network of airfields for naval air training bases at Pensacola, Fla.

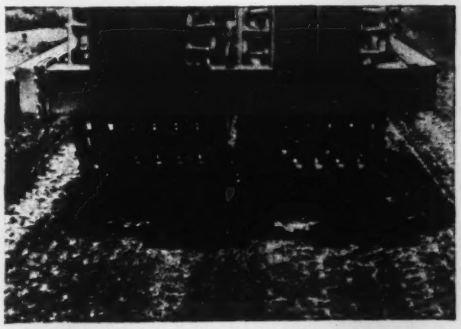
From 1945-47 he was design manager in the Navy's Bureau of Yards and Docks, and from 1947 until this year he served as public works officer, officer-in-charge of construction, and district civil engineer for the 9th Naval District at Great Lakes, Ill.

Revolutionizes Black Top Salvage Jobs

HOW IT WORKS...WHAT IT DOES

1. Black top is scarified by motor grader pulling Grid Roller.
2. Scarified black top is pulverized to a maximum of small "fines" by Grid Roller.
3. Pulverized black top is windrowed—road bed cleaned by motor grader—compacted by Grid Roller.
4. Windrow is spread and oil applied, material mixed and relaid and then compacted by Grid Roller. Now ready for seal coat.

HOW IT SAVES TIME AND MATERIAL



Salvaged Black Top compacted in place and ready for seal coat

1. In ONE day ONE man with motor grader and Grid Roller can salvage and prepare ONE MILE of black top road for oiling.
2. Grid Roller produces greater abundance of FINE MATERIAL.
3. Oil usage reduced up to ¾ of a gallon per cubic yard—on one county road job a savings of $343 per mile in oil was effected.
4. Grid Roller salvages all types of black top material. NO NEED TO HAUL AWAY OLD MATERIAL.

Sold exclusively by your "CATERPILLAR" DEALER. CONSULT HIM FOR FACTS, FIGURES, LITERATURE.

HYSTER® COMPANY

2953 N. E. CLACKAMAS, PORTLAND 8, OREGON
1853 NORTH ADAMS ST., PEORIA 1, ILLINOIS

MEN AND JOBS

Loyd G. Richey has been named to head the municipal engineering department of Charlotte, N. C. He will succeed Lloyd M. Ross, resigned. Mr. Richey is a graduate of Alabama Polytechnic Institute in 1934 with a degree in highway engineering. He was formerly with the South Carolina State Highway Department and since January, 1939, has been city engineer and superintendent of public works at Belmont, N. C. He served with the Army Corps of Engineers.

East met West in San Francisco recently when Maj. Gen. Hugh J. Casey, (left), and Maj. Gen. J. G. Christiansen happened to pass through that city at the same time. Casey, traveling east after 8 years as chief of engineers in the Pacific under General MacArthur, is to be division engineer at Cincinnati, Ohio, but before taking over there will serve as a U. S. delegate to the 17th annual navigation congress at Lisbon. Christiansen was en route to Tokyo, where he succeeds Casey as chief of engineers, Japan Occupational Forces.

Gustaf Adolph Swanson has been named construction engineer to supervise completion of the Bureau of Reclamation's Anderson Ranch Dam, Boise Idaho. He replaces **Donald S. Walter,** who has been chosen new regional engineer in Boise. Swanson, who holds a bachelor of engineering degree from the University of Iowa, has been office engineer on the project since 1944 and an employee of the Bureau since 1928 when he joined the Yakima Project. Mr. Swanson has also worked at Hoover, Shasta, and Keswick dams.

Norman Heblen, formerly executive director of the Public Works Association, has been appointed head of a survey of Connecticut's public works for the Commission of Organization of the State Government. He has been a special consultant on the staff of the Public Administration Service and a research associate in transportation, Yale University. Mr. Heblen will be assisted by **Charles E. Downe,** New Haven's city plan engineer and **Albert Pleydell,** formerly commissioner of purchases in New York. **Arthur A. Maass,** consultant on natural resources, Bureau of the Budget, Washington, will be project director of conservation and development. He was a consultant on the Hoover Commission and is a former member of the National Resources Board. Mr. Maass will be assisted by **Joseph L. Fisher,** economist with the Council of Economic Advisers, executive office of the President, and **Maynard M. Hufschmidt,** who is a member of the Department of the Interior staff on natural ersources.

Col. L. G. Yoder, West Point, 1918, is now district engineer for the St. Paul, Minn., district, Corps of Engineers. He has been Army engineer of the Fifth Army in Chicago. He succeeds Col. W. K. Wilson, Jr., who was recently transferred to Mobile, Ala. As head of the St. Paul District, Colonel Yoder will be responsible for Corps of Engineers river and harbor and flood control projects of the Mississippi River drainage in Minnesota, parts of Wisconsin and Iowa, and for the drainage of the Red River of the North in Minnesota and parts of North and South Dakota. He will also supervise the research work on snow, ice and permafrost which is being conducted by the St. Paul district. During the war Colonel Yoder served in the South Pacific and Far East Commands at headquarters and with troops.

Officials of the Metropolitan Water District of Southern California are shown lending a hand as the last truckload of concrete is poured for the $4,000,000 expansion of the district's water softening and filtration plant in Los Angeles. Warren Butler, vice-chairman of the board of directors, wields the shovel on the left, while Julian Hinds, general manager and chief engineer, holds the truck with the assistance of a workman. Completion of the concrete work marks the final stage of construction on the zeolite structure, and officials plan to have the buildings and facilities prepared at once for any demands. This new second unit doubles the plant's capacity to 200,000,000 gpd. for the millions of Southern Californians who depend upon Colorado River water.

C. W. Short, former district engineer for the Boise, Idaho, district, has been appointed state secondary road engineer. **C. L. Varian** has replaced Short in the Boise district.

John C. Asheboro has been named Third District engineer in the Sixth Highway division of the North Carolina Highway Department. He was formerly maintenance supervisor and fills a vacancy created by the promotion of **A. J. Hughes** to assistant engineer of the sixth division.

H. M. Morecock, Jr., Virginia State Highway resident engineer at Amelia, has taken over the new position of cost account analyst at the Richmond headquarters. Mr. Morecock has been with the department since 1929. **L. B. Ward,** resident engineer at Louisa, will succeed Mr. Morecock. Other changes include G. P. Bozel resident engineer from Bedford to Louisa; E. H. Cunningham, Jr., from Bowling Green to Bozel; W. S. G. Britton, assistant resident engineer at King George to resident engineer at Bowling Green.

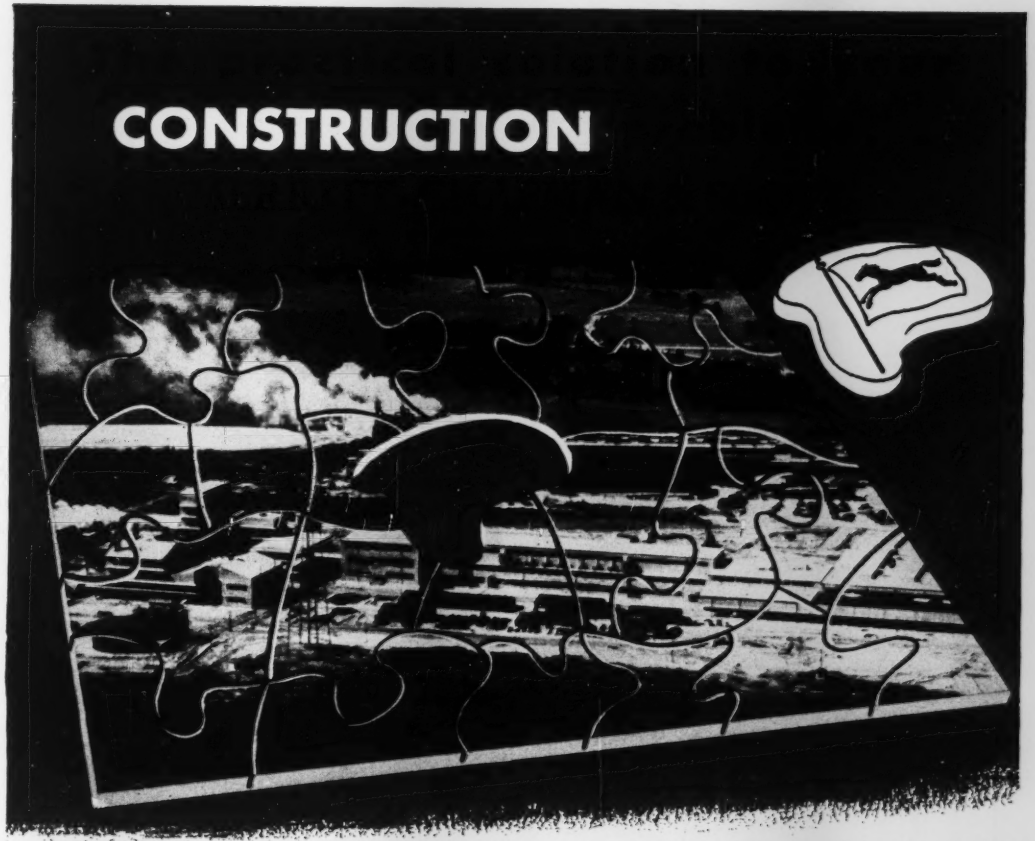
Robert K. Creighton, of Raleigh, N. C., former director of the Raleigh Housing Authority, has been appointed to the Asheville, N. C., Housing Authority.

A. N. Aitken, retired city engineer of Erie, Pa., has been called back to work for the city to expedite plans for sewer construction. Prior to his retirement he had been employed by the city for more than 45 years.

Alfred Machis, doctor in civil engineering and research associate at Johns Hopkins, has been appointed director of the department of public works in Anne Arundel County, Md. He was two years a lieutenant with the Army Corps of Engineers, and has

(Continued on page 58)

CONSTRUCTION

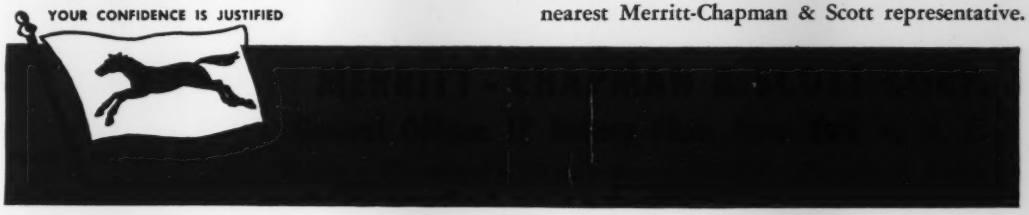


Since its adoption in 1860, the house flag of the Merritt-Chapman & Scott Corporation has flown over every conceivable type of construction project. Through the years the Corporation has earned a unique position in the construction field, by handling a variety of assignments throughout the world, with such speed and efficiency, that it has proven beyond any doubt; "Your confidence is justified where this flag flies."

Tunnels, piers, dams, housing projects, plants and mills, from foundation to roof, completely equipped and ready to operate; all these and many more come within the scope of the Corporation's seasoned forces.

Pictured above is the 200-ton Kraft mill and bag factory of the Alabama Pulp & Paper Co., at Cantonment, Fla. This is a typical Merritt-Chapman & Scott "turn-key" assignment. In addition to the construction work, the Corporation handled all of the wiring, piping, and the purchase and installation of all operating equipment.

If you are planning improvements to your present plant or mill, or the construction of a completely new installation, get in touch with your nearest Merritt-Chapman & Scott representative.



ADAMS Long-Life Dependability brings Repeat Orders from Officials and Contractors

In the picture above, Mr. Perley Dodge poses with the Model 101 Adams Motor Grader which for 19 years he operated for Columbia County, Wisconsin. Despite approximately 39,000 working hours, this machine required only normal maintenance service.

Since 1930 Columbia County has purchased 21 Adams Motor Graders, with 19 still in year-around operation. They are used for grading, ditching, bank sloping, oil mix, gravel spreading, road maintenance, etc., in summer—for snow removal in winter.

The R. B. Tyler Company, Louisville, Kentucky, who operate on a large scale throughout the south, own 21 motor graders, a number of which are Adams.

Tyler officials say, "We like Adams machines—like their adaptability, ease of operation, wide range of speeds and over-all economy. That's why we continue to buy them year after year."

For complete information on dependable, long-life Adams Motor Graders, see your local dealer—there's one located conveniently near you.

J. D. ADAMS MANUFACTURING CO. • INDIANAPOLIS, INDIANA

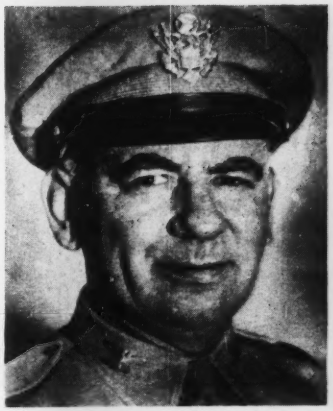
Make your next motor grader an **Adams**

worked with the Maryland State Planning Commission and also with the Washington Suburban Sanitary Commission.

Lt. Joseph P. O'Hanlon has been appointed assistant to Col. Charles G. Holle, U. S. District Engineer at New Orleans, La. He received his master of science degree in civil engineering from Massachusetts Institute of Technology. He served with the 46th Engineer Construction Battalion, Eighth Army, in Japan.

A. N. Horne has been elected a vice-president of the Trans-Arabian Pipe Line Co. He supervised construction and operation of the Big Inch pipe lines. Before the war he was manager of the Empire Pipe Line Co. but left to enter military service. Later he was released by the Army to become general superintendent for War Emergency Pipe Lines, Inc. He now becomes resident executive officer at Beirut, Lebanon, and general manager of Trans-Arabian's 1067-mile construction project in the Middle East.

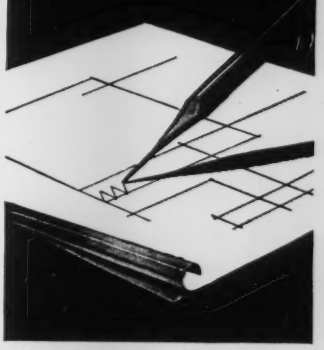
George L. Lemon, assistant district engineer, Vicksburg, of the Mississippi State Highway Department, has been appointed district engineer at Hattiesburg to succeed J. W. Kornrumpf, resigned. Mr. Lemon has been with the department for 17 years.



Col. Fremont S. Tandy has assumed his new assignment as district engineer of the San Francisco District, Corps of Engineers, after three years in Latin America, where he organized and put into operation the Inter-American Geodetic Survey. Colonel Tandy saw active combat service in France during World War II, having been responsible for all major bridging operations of the 20th Corps of the Third Army during the rapid advance of General Patton's Army across France. Before the war he assisted in organizing the Zanesville Engineer District and supervised the construction of 14 flood control dams in Ohio.

In improving her highway system Turkey has had the advice and assistance of U. S. technical experts lent under the Greek-Turkish Aid Act of 1947. H. E. Hilts, deputy commissioner of the Bureau of Public Roads, is still there. Some of the men working with him are pictured above visiting the construction camp at the Caydurt Creek bridge on the Istanbul-Ankara highway. They are, left to right standing, Suleyman Gaji, bridge construction engineer, Turkish highway department; Salih Kuyas, resident bridge engineer; Ilhan Sezer, asst. bridge engineer; Nadir Uluc, chief bridge construction engineer; Joseph Nayir, bridge design engineer; Fred D. Hartford, principal bridge engineer, U. S. Bureau of Public Roads; and Ata Ambarcioglu, bridge construction engineer. Kneeling are Muzaffer Eris, bridge construction engineer; and Resit Yalvac, bridge design engineer.

TRACING CLOTH
for
HARD PENCILS



● Imperial Pencil Tracing Cloth has the same superbly uniform cloth foundation and transparency as the world famous Imperial Tracing Cloth. But it is distinguished by its special dull drawing surface, on which hard pencils can be used, giving clean, sharp, opaque, non-smudging lines.

Erasures are made easily, without damage. It gives sharp, contrasting prints of the finest lines. It resists the effects of time and wear, and does not become brittle or opaque.

Imperial Pencil Tracing Cloth is right for ink drawings as well.

IMPERIAL
PENCIL
TRACING
CLOTH

SOLD BY LEADING STATIONERY AND DRAWING MATERIAL DEALERS EVERYWHERE.

RUST
Destroys Metal

Termites consume wood. Rust devours metal. Annually, rust losses cost the nation $6,000,000,000. Help to stop this terrific loss by safeguarding your property against rust's ravages. Only Rust-Oleum can give the long-lasting protection you need. It's a proved product—*an exclusive formula* — unaffected by rain, snow, fumes, salt air and other destructive conditions.

Rust-Oleum seals the surface with a tough, pliable, *enduring* film that dries to a firm, hard finish. Adds years of extra use to metal—*protects the structural strength of your steel*—roofs, tanks, structural steel, fences and other valuable metal surfaces. STOP FURTHER DAMAGE! You can apply Rust-Oleum over metal that is already rusted—after quick, easy preparation. Applied by brush, dip or spray.

Do You Have Rust Problems?

Rust-Oleum is effective in most rust problems. Write for complete information, or see our catalog in SWEET'S. Tell us your rust problems. We'll gladly offer specific recommendations for application. *Rust-Oleum is made in aluminum and all colors, including white.*

Available through industrial distributors in most principal cities.

RUST-OLEUM Corporation • **2475 Oakton Street Evanston, Illinois**

RUST-OLEUM *Stops Rust!*

Noel G. Dant, senior city planner, Chicago, Ill., has become director of the town planning department, of Edmonton, Alta.

C. G. Levander has become director of public works for Austin, Tex., succeeding James E. Motheral, resigned. Levander has been assistant director of public works since 1933. A civil engineering graduate from Valparaiso, Ind., University, Levander worked for the Illinois Highway Department in 1922-1925, and for Lakeland, Fla., in 1925-1928.

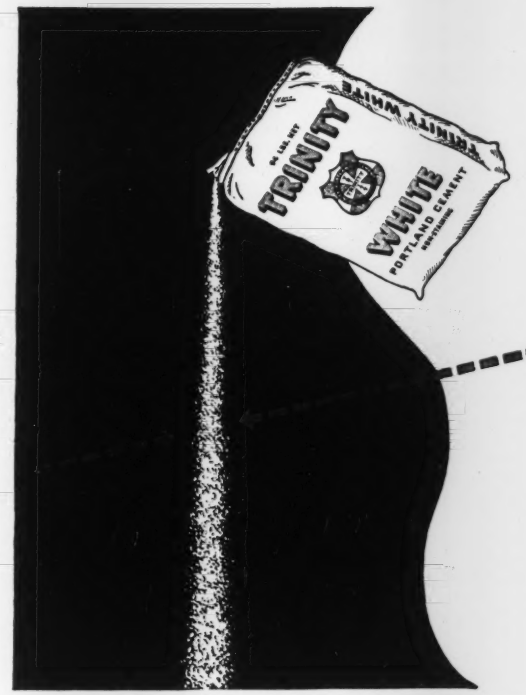
John C. Hall, of Asheboro, N. C., formerly maintenance supervisor with the North Carolina Highway Department, has been named Third District engineer in the Sixth highway division at Lexington, N. C., succeeding **A. J. Hughes,** promoted to assistant engineer of the Sixth Division. Hall has been with the highway commission for 15 years, and prior to that was construction engineer with the Iowa Highway Commission for nine years. He will be in charge of highway work in Davidson and Randolph counties.

Donald K. Harmeson has been named director of the division of sanitary engineering of the Delaware State Board of Health, succeeding James A. McCullough, who was appointed to the post last February following the death of Richard C. Beckett. Mr. McCullough resigned recently. A civil engineering graduate of the University of Illinois in 1933, Mr. Harmeson received his master's degree in sanitary engineering from Illinois in 1934, and a degree of master of public health from the University of Michigan in 1946. He has had experience as a sanitary engineer with the Illinois Department of Public Health, the Conservation Bureau of the Portland Cement Association in Chicago, and the Sanitary Corps of the U. S. Army.

The new location of the offices of **Lee G. Warren,** consulting engineer are at 421 Poplar St., Chattanooga, Tenn.

Herman S. Schick, veteran of 39 years service with the U. S. Corps of Engineers, has been retired from duty in the Nashville, Tenn., district. He began with the Bureau of Public Works in the Philippines upon graduation from the University of Cincinnati with a civil engineering degree.

D. D. Hankins has resigned as city engineer of Savannah, Ga., to enter private business. He had previously been with the state highway department for 21 years.



you can see
that
Trinity White
is the whitest
white cement!

You'll get fine results with this extra white cement. It's true Portland Cement made to ASTM and Federal Specifications. If your dealer does not have it, write the office nearest you: Trinity Portland Cement Division, General Portland Cement Co., 111 West Monroe St., Chicago; Republic Bank Bldg., Dallas; 816 W. 5th St., Los Angeles.

as white as snow

McKIERNAN-TERRY
RUGGEDLY-BUILT
PILE EXTRACTORS

Provide exceptional pulling power, with the sharp energy of blow needed to vibrate and loosen stubbornly set piling. These double-acting extractors come in two standard models—heavy and extra heavy. Standardized line also contains 10 double-acting hammers and 5 single-acting hammers. Write for free Bulletin.
Also builders of coal and ore bridges, bulk material unloaders, bridge operating mechanisms, hoists and marine equipment, and specially designed machinery.

McKIERNAN-TERRY CORPORATION
Manufacturing Engineers
13 Park Row New York 7, N. Y.

35 Years' Experience
GUNITE CONSTRUCTION

Bridges, stacks, bunkers, pipe lining, steel encasement, repairs to disintegrated masonry, etc.

WE SPECIALIZE IN DAM REPAIRS

WHITE & McCOLL, INC.
75 WEST STREET
NEW YORK 6, N. Y.
Phone HAnover 2-0526

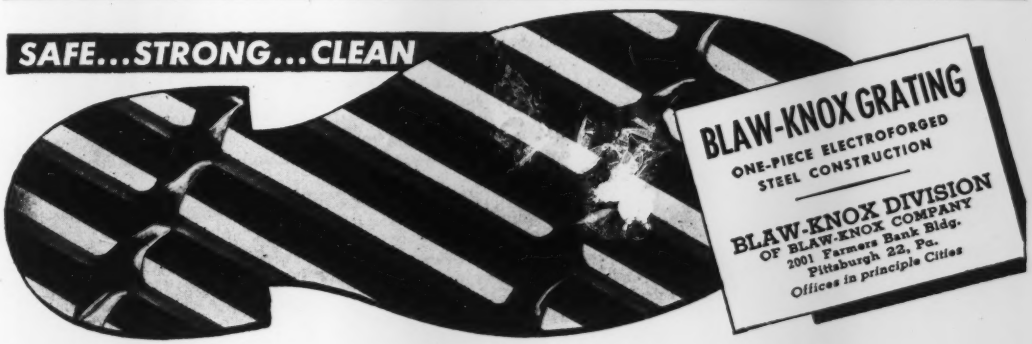
BAILEY METERS AND CONTROLLERS
FOR SEWAGE TREATMENT AND WATER SUPPLY . . .

BAILEY METERS

● Venturi Tubes, Weirs, Flumes, Nozzles and other primary elements; Mechanically and Electrically operated Registers and Complete Automatic Control Systems.

BAILEY METER COMPANY
1029 IVANHOE ROAD • CLEVELAND, O.
Bailey Meter Co. Ltd., Montreal, Canada

SAFE...STRONG...CLEAN



BLAW-KNOX GRATING
ONE-PIECE ELECTROFORGED STEEL CONSTRUCTION

BLAW-KNOX DIVISION
OF BLAW-KNOX COMPANY
2001 Farmers Bank Bldg.
Pittsburgh 22, Pa.
Offices in principle Cities

OBITUARY

William Lincoln Riley, 84, pioneer Los Angeles construction engineer and builder of Los Angeles' second street traffic tunnel, died in Los Angeles, Oct. 4. He was head of the W. L. Riley Construction Co. from 1887 to 1927, formerly president of the 2nd St. Tunnel Association, and was well known in civic circles.

George Allingham, 72, who served as assistant chief engineer in the construction of Muscle Shoals in 1917, died Oct. 14 in Birmingham, Ala. He was a graduate of the University of Michigan.

Harry B. Oster, 52, a civil engineer, died Oct. 13 at Philadelphia, Pa. He was with E. Yellin and Son, Inc., Philadelphia contracting and building firm. He had attended Temple University.

Robert H. McKinley, 53, civil engineer and president of the McKinley Construction Co. of Arlington, Va., died there Oct. 15. A graduate of Purdue University in civil engineering, after service in World War 1, Mr. McKinley worked as a civil engineer on construction projects in the Middle West before moving to Virginia several years ago to found his own contracting company. The firm specialized in railroad construction.

Arthur S. Bland, 68, formerly a division engineer for the Pennsylvania Railroad at St. Louis, Mo., died in St. Louis on Oct. 14. Latterly he had been with the Mississippi Valley Structural Steel Co.

Dominick L. Carmody, 62, a retired civil engineer, died at Bethesda, Md., Oct. 12. In the first world war he was a first lieutenant in Co. D of the 436th Engineers. For about 34 years he was a civil engineer with the Bureau of Reclamation.

Herschel Lee McCafferty, 78, London, Ohio, county engineer of Madison County for the last 50 years, and city engineer of London about 25 years, died Oct. 16. His administration was responsible for building all the county's modern roads.

William H. Bean, 80, retired structural engineer, died in Warren, Ohio Oct 18. He was employed by the Penn Bridge Co. at Pittsburgh before his retirement.

Notes on Legal Decisions

Summaries of decisions relating to construction prepared by I. Vernon Werbin, counselor at law and engineer, New York, author of Legal Phrases of Construction Contracts (McGraw-Hill)

Owner's Right to Damages on Abandonment of Contract

There are cases that hold that where the contract gives the owner the right to take over the job and complete it, when the same has been abandoned by the contractor, the owner by taking over the work and completing it himself waives his right to liquidated damages provided for in the contract.

Thus in Canton versus Globe Indemnity Co. the court stated: "The authorities quite uniformly hold, *** that a provision for liquidated damages in a building contract such as we are here considering should be construed as applying only to delayed, and not to abandoned, performance."

In Williston on contracts (revised edition, Sect. 785) it is stated: "But if the contract is totally abandoned, the agreed damages cannot be recovered. The provision is construed as applying only to delayed, not to abandonded performance."

More recent cases have repudiated this doctrine and hold that the right to recover liquidated damages survives the taking over of the work and completing it by the owner, after the same has been abandoned by the contractor. Thus in Clemente Const. Corp. versus P. T. Cox Contracting Co.[2] the court, after reviewing many cases on this subject states: "The better rule, in the opinion of this court, is to allow liquidated damages in such cases. Otherwise, it would be easily possible for a contractor to avoid liability, under a contractual provision for the payment of liquidated damages for delay in completion, by deliberately abandoning the work as soon as he became convinced that he could not complete it within the specified time. Foundation for this view is afforded not only by the cases of Comey versus United Surety Co.[3] and McKegney versus Illinois Surety Co.[4] but by subsequent decisions of other courts. In Southern Pacific Co. versus Globe Indemnity Co.[5] Judge Swan, writing for the court said:

" 'It is urged that a liquidated damage clause does not apply when work under the contract is abandoned by the contractor. Murphy versus United States Fidelity & Guaranty Co.,[6] and Village of Canton v. Globe Indemnity Co.,[7] are cited as authorities to this effect, and a similar statement may be found in Williston on contracts, Section 785. A close examination of the cases, however, does not in our opinion establish such a rule, and we can see no justification for it, at least when the contractor abandons after the time for completion has passed.'

"In the recent case of Six Companies of California versus Joint Highway Dist. No. 13 of California the court adopted the rule that a liquidated damage clause in a contract must be enforced even though delay occurs because of abandonment. In approving this decision, a note in 52 Harvard Law Review, 160–161 says:

" 'The older view, then, is anomalous in that the more flagrant the breach and the greater the likelihood of delay, the more difficult it will be for the owner to recover for the delay he was guarding against.'

"The case of Board of Education versus Sandman[8] is clearly distinquishable. There the contractor never commenced to work but "utterly abandoned and repudiated the contract.' The learned Mr. Justice Townley stated[9] that the cases against the rule enunciated by him were 'cases where the contractor commenced the work and thereafter breached the contract.' Furthermore the court in that case was evidently impressed with the unreasonable magnitude of the liquidated damages.

"In the instant case the allowance of liquidated damages will not result in injustice. The parties intended that the clauses in the contract should not be mutually exclusive; that there should be concurrent remedies. Certainly if their intention were otherwise it would have been simple to make such provision."

Other cases on the right to recover liquidated damages for delayed performance will be found in ENR, June 10, 1948, page 99.

(1) Canton v. Globe Indemnity Co., 201 App. Div. 820, 195, N.Y.S. 445.
(2) Clemente Cond. Corp. v. P. T. Cox Contracting Co., 172 Misc. 904, 16 N.Y.S. 2d. 483.
(3) Comey v. United Surety Co., 160 App. Div. 698, 145 N.Y.S. 674, affirmed 217 N.Y. 268, 111 N.E. 832.
(4) McKegney v. Illinois Surety Co. 180 App. Div. 507, 167 N.Y.S. 843.
(5) Southern Pacific Co. v. Globe Indemnity Co., 21 F. 2d 288, 291.
(6) Murphy v. U. S. Fidelity & Guaranty Co., 100 App. Div. 93, 91 N.Y.S. 582, affirmed 184 N.Y. 543, 76 N.E. 1101.
(7) Six Companies of California v. Joint Highway Dist. No. 13 of California, D.C. N.D. California, 1938, 24 F. Supp. 346.
(8) Board of Education v. Sandman, 134 Misc. 456, 234 N.Y.S. 665, 666 affirmed 229 App. Div. 853, 243, N.Y.S. 805.
(9) 134 Misc. at page 458, 234 N.Y.S. at page 667.

A Good Shovel Works Better with an Amsco Dipper

Made of austenitic manganese steel for resistance to impact, pressure, and abrasion, Amsco dippers also provide the advantages of fast, full loading and quick, complete dumping. Design of Amsco dippers is based on an experience of forty years in fields of power shovel application. To make a good shovel work better, specify an Amsco dipper. Available in all standard capacities, up to ten cubic yards . . . and in types as outlined below.

AMSCO RENEWABLE LIP DIPPER

A strong, long-life dipper, designed for low overall cost. Patented Amsco construction makes it possible to replace worn lip quickly, holding down-time to a minimum. Teeth are also renewable and reversible.

AMSCO WELDED TYPE DIPPER

Designed to meet the demand for a strong durable dipper at minimum weight . . . for fast digging and economical use of power. Built in two types: Two Part (1½ to 2 yards) and Four Part (2 yards and up); sections are joined by Amsco's patented plug welding process, with all joints overlapped for rigidity. Teeth reversible for double duty . . . and replaceable.

AMSCO DIPPERS for Special Purposes

AMSCO manufactures the famous Missabe Dippers and a wide range of cast manganese steel dippers and buckets for pull-shovels and underground work . . . as well as dippers of any design to meet any particular application.

AMSCO PARTS

AMSCO supplies cast manganese steel dipper and shovel parts, including: teeth, renewable lips, bails, racks and pinions, sheaves, gears, crawler parts . . . as well as a complete line of welding products for hardfacing and reclamation.

For full information on Amsco Dippers and parts—write for Bulletin 547-DS.

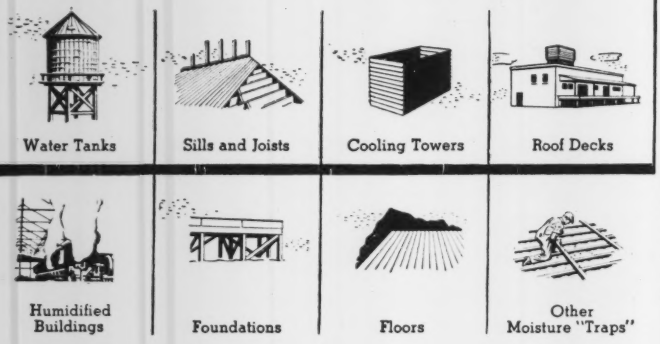
AMERICAN Brake Shoe COMPANY

AMERICAN MANGANESE STEEL DIVISION
CHICAGO HEIGHTS, ILL.

Foundries at Chicago Heights, Ill., New Castle, Del., Denver, Colo., Oakland, Calif., Los Angeles, Calif., St. Louis, Mo. Offices in principal cities. In Canada: Joliette Steel Limited, Joliette, Que.

WOLMANIZED PRESSURE TREATED LUMBER

Means Absolute Protection to Wood Endangered by ROT and TERMITES



Here are six common conditions where WOLMANIZED Pressure-Treated Lumber provides protection from decay and termites:

1. Where excessive ground moisture, rain or thaws cause early decay failures.
2. Where wood near the ground is open to termite attacks.
3. Where wood is in contact with damp concrete or masonry.
4. Where steam and vapor from industrial processes promote wood decay.
5. Where walls, floors, ceilings are subject to condensation from refrigeration.
6. Where wood is exposed to moisture in artificially humidified buildings.

Investigations by qualified technologists prove that on installations where decay and termites ordinarily shorten lumber life, WOLMANIZED Pressure-Treated Lumber lasts *Three to Five Times Longer* than untreated wood.

Such lasting protection is assured because penetrating, preservative solutions are forced, by vacuum-pressure treatment, deeply into the wood fibers of WOLMANIZED Lumber. And, WOLMANIZED Lumber is clean, odorless, paintable, non-corrosive, non-leaching and glueable. Only WOLMANIZED Lumber offers *all* these extra advantages.

YOU'LL PROFIT BY GETTING THIS INFORMATIVE BOOKLET

Get all the facts and cost-saving figures on WOLMANIZED Lumber. See why it offers you the best protection available against wood decay and termites. Write for this valuable booklet today.

AMERICAN LUMBER & TREATING COMPANY

General Offices: 332 South Michigan Avenue, Chicago 4, Illinois

Branch Offices: Baltimore, Boston, Jacksonville, Fla., Los Angeles, New York, Philadelphia Portland, Ore., San Francisco, Washington, D. C.

Elections and Activities

W. H. Sparks, Kamloops, B. C., has been elected chairman of the Municipal and Public Works Division of the B. C. Engineering Society. Other members of the executive committee elected are: G. W. Meckling and F. G. De Wolfe of Vernon, and J. C. Oliver of Vancouver.

The Carolinas branch AGC has been advised of the activation of its Third Army affiliated unit, the 374th Engineer Construction Group, under the command of Col. Cecil L. Cheves, Daniel Construction Co., Greenville, S. C.

Members of the Buffalo, N. Y., section of the ASCE have paid tribute to Col. Harland C. Woods, civil engineer and authority on Niagara Power and Great Lakes waterways and harbors, who recently announced his retirement as special assistant to the district engineer, U. S. Corps of Engineers, in Buffalo. Colonel Woods was commended for his activities by Col. Frank H. Forney, district engineer, Corps of Engineers; Newell L. Nussbaumer, Edward J. Nunan and Edward P. Lupfer. A. Stuart Collins, president of the Buffalo section, presided.

MAJOR MEETINGS

American Institute of Steel Construction, Greenbrier Hotel, White Sulphur Springs, W. Va., Oct. 31-Nov. 3.

Building Officials Conference of America, Wardman Park Hotel, Washington, D. C., Oct. 31-Nov. 4.

National Reclamation Association, Hotel Newhouse, Salt Lake City, Utah, Nov. 2-4.

American Society of Civil Engineers, fall meeting, Hotel Statler, Washington, D. C., Nov. 2-4.

American Road Builders' Association, fall conference, Mayflower Hotel, Washington, D. C., Nov. 7-8.

Structural Clay Products Industry, Greenbrier Hotel, White Sulphur Springs, W. Va., Nov. 10-12.

National Council of State Boards of Engineering Examiners, Sheraton Plaza Hotel, Daytona Beach, Fla., Nov. 10-12.

National Association of Housing Officials, Hotel Statler, Boston, Mass., Nov. 13-16.

Society for Experimental Stress Analysis, Hotel New Yorker, New York City, Nov. 30-Dec. 1.

American Municipal Association, Hotel Cleveland, Cleveland, Ohio, Nov. 30-Dec. 2.

CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 18, N. Y.

ELSIE EAVES, Manager — *J. A. MAHONEY, Reports* — *M. R. ROESSLER, Statistics*

WATER SUPPLY

BIDS ASKED

November 7

Md., Towson — Bd. Comrs. Baltimore Co., Court House, Contr. 175-S, Part A- 4,680 lin. ft. 15- to 21-in. vitr. clay pipe and 1,890 lin. ft. 18 and 21 in. VCPX; Part B- 3,040 lin. ft. 6- to 18-in. vitr. clay pipe, 1,920 lin. ft. 8 in. VCPX and 2,340 lin. ft. 14 in. c. i. pipe. Plans deposit $5. Wm. F. Neale, Court House, ch. engr.

November 10

Ala., Alicеville—City, steel reservoir, booster pumping station and exten. distr. sys. Plans deposit $10. Polk, Powell & Hendon, Chamber of Commerce Bldg., Birmingham, engrs.

†D. C., Wash.—U. S. Eng., First and Douglas Sts. N. W., Wash., Zone 25, erecting temporary shop and storehouse bldgs. at Delecarlia Filtration Plant, Serial No. CIVENG-49-080-50-28.

LOW BIDDERS

Mass., Boston — Commonwealth of Mass., Metropolitan Dist. Comm., 20 Somerset St., Water Division, Contr. 163, 20 furnishing, laying water pipes, Melrose and Saugus, from Gi Wyner Co., Inc., 12 Newland St., Malden, **$454,170.** CD 10/17.

N. C., Morganton—State Hospital, (N. C. Bd. Controls), R. M. Purser, hos. mgr. Oct. 12, WW imprvs., Sect. I, tank, from R. D. Cole, Newman, Ga., **$38,830*****Sect. III, connect, watermains from Setzer Constr. Co., Hickory, **$29,026*****Sect. VII, dam and Sect. V, pumping station, from Lee-Grannis & Sloan, Fayetteville, **$230,252.** CD 9/22.

N. C., Salisbury—City, Oct. 19, water purification plant, from V. B. Higgins & Co., Greensboro, **$392,490.** CD 9/12.

O., Warren—City, City Hall, feeder main connections, a first step in getting domestic water supply for city from Mosquito Creek reservoir, incl. laying 14,000 ft. 6- to 20-in. pipe, from DeLuca Constr. Co., 1055 Grant St., Akron 11, **$213,670.** CD 9/30.

†Oregon—Bureau Reclamation, Dpt. Interior, Klamath Falls, rec'd bids Sept. 22, modification and exten. inlet transition structure for Pumping Plant D and enlarging portion inlet channel to pumping plant, Spec. R2-73 (Region 2), Klamath Proj.

R. I., Narragansett — Town, Bd. Water Comrs., Town Hall, Oct. 18, approx. 19,000 ft. watermains, appurtenances, asbestos cement pipe, from A. E. Bragger Constr. Co., Bragger St., Warwick, **$72,861;** c. i. pipe, from J. Tirocchi & Sons, 286 Hartford Ave., Providence, **$86,826.** CD 10/11.

Tex., Baytown—Harris County Water Control & Imprvt. Dist. 8, 6624 Foster St., Houston, rejected bids Oct. 10, water storage tank, L. B. **$37,825,** WW, L. B. **$132,956.** CD 10/18, under LB.

Tex., Galveston — City, Oct. 13, 3 welded steel water storage tanks, on concrete fdns., from Chicago Bridge & Iron Co., 5626 Clinton Dr., Houston, **$177,850.** Freese, Nichols & Turner, 2111 Natl. Standard Bldg., Houston, engrs.

CONTRACTS AWARDED

Ala., Gadsden—City, filtration plant adn., to Butler & Cobbs, Bell Bldg., Montgomery, **$224,000.** Bids 10/18. CD 9/1.

Fla., Ocala—City, water treatment and sewage disposal plants, to F. H. McGraw & Co., 51 E. 42 St., New York 17, N. Y., **$673,205.** Bids 9/9, awarded 10/22. CD 9/15, under LB.

Ia., Cedar Rapids—City Water Works, Leo Louis, supt., water purification plant addn., imprvs., filter equip., to Roberts Filter Mfg. Co., Darby, Pa., **$150,870;** general construction, to Greene & Gust Co., 1154 W. Lunt St., Chicago, Zone 26, Ill., **$563,120.** Bids 10/13. CD 9/14.

Ky., Louisville—At office Robert L. Sloss, atty., 309 Marion E. Taylor Bldg., water distr. sys. extens., Preston St. Rd. Water Dist. 1, incl. furnishing, installing approx. 60,000 lin. ft. 6 and 8 in. cement lined c. i. water pipe, valves, fire hydrants, etc., to The G. H. Leach Co., Inc., Belmont-Iroquois Natl. Bank Bldg., Bellefontaine, O., **$181,781.** Bids 9/9. CD 8/30.

Ky., Whitesburg — City, City Hall, WW imprvs., to Bowdell Plumbing Co., Frankfort, **$49,000.** CD 6/20.

●Mass., Boston—Metropolitan Dist. Comn., 20 Somerset St. pipeline connection Blue Hills Reservation, Boston and Quincy, Contr. 186, to M. De Matteo Constr. Co., 200 Hancock St., Quincy, **$1,586,513.** Bids 9/26, awarded 10/14. CD 9/20.

N. C., Albemarle—City, WW, Yadkin River raw water pump. station, to C. W. Gallant, 206 Latta Arcade and Glenn Constr. Co., Liberty Life Bldg., Charlotte, **$114,910.** Bids 10/14. Peirson & Whitman, Security Bank Bldg., Raleigh, engrs. CD 7/19/48.

SEWERS, WASTE DISPOSAL

BIDS ASKED

November 5

Ont., Acton—J. McGeachie, village clk., sanitary sewerage sys. incl. treatment plant and pump. station. Approx. **$375,000.** R. V. Anderson, 956 Eglinton Ave. W., Toronto, engr. CD 12/1/45.

November 7

Mass., Middleboro—Town, Bd. Selectmen, sewerage disposal sys., Northeast of North and Everett Sts. Approx. $50,000. CD 2/16.

November 8

Ark., Benton—City Board Comrs., Benton, sewerage treatment plant, $90,000. Plans deposit $25. Marion L. Crist & Assoc., Union Life Bldg., Little Rock, engrs. CD 10/11/45.

November 10

R. I., East Providence—State, F. A. Adams, purch. agt., State House, Providence, Contr. 12, diversion structures and temporary chlorination, Bucklin Point Sewerage Treatment Plant. Approx. $50,000. Plans deposit $25. Metcalf & Eddy, 1300 Statler Bldg., Boston, Mass., engrs.

LOW BIDDERS

Calif., Los Angeles—Los Angeles Co., 501 Hall of Records, Oct. 18, 3.8 mi. 6 and 8 in. vitr. clay sanitary sewers in Ellis Lane, C. I. 1239, Rosemead, from Robert Vlacich, 2901 Worthen St., **$106,407.** Est. $119,000. CD 10/7.

Calif., Pomona—City, Oct. 18, sanitary sewers in Butterfield Rd., from Frank Chuck, 124 N. Bleakwood Ave., Los Angeles, **$185,600.** Est. $193,104. CD 9/19.

●Calif., San Francisco—Dpt. P. Wks., City Hall, Oct. 19, influent and effluent sewers at North Point Sewage Treatment Plant, from Charles L. Harney, 575 Berry St., **$1,041,163.** CD 9/29.

Ill., Chicago—Cook Co., County Bldg., Oct. 18, drainage Edens Hy., Dempster to Glenview Rds., from Louis Scully & Sons, 6127 N. Hiawatha St., Zone 30, **$297,504;** drainage Glenview Rd. to Skokie River, from Healy Bros., 330 S. Dearborn St., Zone 4, **$247,775.**

Ill., Chicago—Cook Co., County Bldg., Zone 2, Oct. 18, 11,239 lin. ft. 30- to 72-in. storm sewers, Sect. 263-0608-15D, Cicero Rd. from intersection of Central south to Glenview Rd., from Healy Bros., 336 W. 37 St., Zone 9, **$347,754.** CD 10/1.

N. Y., Brooklyn—Dpt. P. Wks., Municipal Bldg., Zone 7, Oct. 19, Contr. 12, roads, drains, landscaping for 26th Ward Sewage Treatment Works, from Frank Mascali & Sons, Inc., 129 St. and 31 Ave., Flushing, **$244,988.** CD 9/22.

Tex., Baytown—Harris County Water Control & Imprvt. Dist. 8, 6624 Foster St., Houston, rejected bids Oct. 10, sewage treatment plant, L. B. **$96,815;** sewage collection sys., L. B. **$108,869.** CD 10/18, under LB.

Tex., Lufkin—City, Oct. 12, sewage treatment plant imprvs. and enlargement, and sewers from John G. Holland Constr. Co., 1602 Old Spanish Trail Rd., Houston, **$56,600,** est. $60,000 and **$57,155,** est. $70,000 respectively. CD 9/29.

Wash., Spokane—City, City Hall, Oct. 20, constr. Division "F" (Chestnut St. Section) of Intercepting sewerage sys., from Smith & White, Pier 65k Seattle, **$611,794.** Est. $536,750. CD 9/29.

CONTRACTS AWARDED

Kan., Johnson—City, sewers and sewage plant, to Burt & Binford, Hutchinson, **$103,371.** Bids 10/11. CD 9/22.

●N. Y., Brooklyn—Dpt. P. Wks., Municipal Bldg., New York, Zone 7, Contr. 1, intercepting sewer, south branch, Owl's Head Sewage Treatment Works, to Substerrane Corp., 420 Lexington Ave., New York, Zone 17, **$1,431,900.** Bids 9/27. CD 8/24.

N. C., Woodruff — Town, sanitary sewer imprvs., to Peden Constr. Co., Greenville. Approx. **$200,000.** Bids 10/11. CD 10/17, under LB.

Tex., Pampa—City, sewage treatment plant, to Brooks & Gardner, Keystone Hotel, Lampasas, **$124,650.** Bids 10/18. CD 2/16.

Tex., San Antonio—Billy Mitchell Village, Inc. and Southwest Homes Texas Co., 812 Insurance Bldg., sanitary sewers, drainage, to C. L. Browning, Jr. & Co., Travis Bldg., **$77,000.** CD 7/29.

Va., Norfolk—City, sanitary sewers in Virginia Estates area, to A. G. Pinkston Co., 1803 County St., Portsmouth, **$116,052.**

Ont., Beamsville—Village, H. N. Reid, clk., 35,000 ft. sewers, to William Lorenza Contg. Co., 1264 Stamford St., Niagara Falls. Approx. **$115,597.** CD 9/6.

BRIDGES

BIDS ASKED

November 9

†Georgia—U. S. Eng., P. O. Box 1169, Mobile, 7, Ala., constr. superstructure and roadway for Allatoona Creek Crossing Bethany Rd., Bartow Co., Serial No. CIVENG 01-076-50-9. Extended date. CD 9/2.

November 10

N. Y., New York—President Manhattan Boro, Municipal Bldg., Zone 7, completing viaduct overpasses between Franklin D. Roosevelt Dr. and 1 Ave. at E. 42 St. and E. 48 St. etc. Plans deposit $50. Extended date. CD 10/14.

November 15

Calif., Los Angeles—Los Angeles Co., Hall of Records, rein.-con. bridge and steel stringer timber deck bridge over Los Angeles River at Imperial Hy., C.C.OB 624, South Gate, Approx. $50,000. C. E. Arnold, co. engr. CD 1/26/48.

LOW BIDDERS

Ill., Chicago—Cook Co., County Bldg., Oct. 18, grade separation Dundee Rd., Edens Hy., from Thomas McQueen Co., 1313 Circle St., Forest Park, **$352,555*****grade separation at Simpson St., from Robert R. Anderson Co., 4550 W. Patterson St., Zone 41, **$354,065***** grade separation at Glenview Rd., from Arcole Midwest Corp., 3225 Main St., Skokie, **$328,417.** CD 10/10.

Wisconsin—State Hy. Comn., Madison, Oct. 18, Structures B-66-655 and B-66-654, Schaefer Bridge and Approaches and Pomahac Bridge and Approaches, 0.435 mi. C. T. Hy. H. The U. S. H. 45-Fillmore Rd., Projs. S 0804 (1) and S 0404 (2), Washington Co., from Schmidt Service, Richfield, **$82,667*****structures and approaches 0.69 mi. S. T. H. 132, the Mt. Hope-Boscobel Rd., Projs. S-0335 (1) and T 0335 (1), Grant Co., from Donaldson Bros. Constr. Co., Menomonie, **$72,170*****structure B-22-13 and approaches Blue River Bridge, 1.004 mi. C. T. Hy. G, Contr. 1, The Fennimore-Muscoda Rd., Proj. S-0210 (1), Grant Co., from H. Turner & Son, Boscobel, **$61,327.** CD 9/30.

CONTRACTS AWARDED

Arkansas—State Hy. Dpt., Little Rock, 9 concrete bridges on Hy. 28 between Needmore and Forrester, Scott Co., to Reynolds & Williams Constr. Co., Tyler, Tex., **$111,749;** rein.-con., structural steel I-beam bridge and 1 rein.-con. structural steel I-beam overpass on Mammoth Spring-South Rd., Mammoth Springs, and 329.25 ft. rein.-con. bridges on Hardy-Mammoth Spring Rd., Hardy, both Fulton Co., to E. E. Barber Constr. Co., Ft. Smith, **$97,274** and **$89,761** respectively. Grand total $298,784. Bids 10/21. CD 10/13.

Arkansas—State Hy. Dpt., Little Rock, to Mc George Contg. Co., foot of Nebraska St., Pine Bluff, grading, minor drainage structures, grav. 2.2 mi. Montrose Overpass approaches.

PROJECTS COVERED

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $28,000; other public works $50,000; industrial buildings $68,000; other buildings $250,000.

Classes of Construction

(Name in order of Listing)

Water Supply
Sewers, Waste Disposal
Bridges
Streets & Roads
Earthwork, Waterways
Latin America
Public Buildings
Commercial Buildings
Industrial Buildings
Unclassified

Stages Reported

PROPOSED WORK: Including appointment of engineers or architects.

BIDS ASKED (new announcements only). For full calendar, see also preceding issues of ENR.;

LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

Symbols and Abbreviations Include:

† Federal Government
● Project of $1,000,000 or over.
ENR Engineering News-Record
CD Engineering News-Record Construction Daily

State Hy. 82, Ashley Co., **$132,383**; grading, minor drainage structures, crushed stone and bit. 6.2 mi. on Big Buffalo-North Rd., Newton and Boone Counties, **$171,099**; grading, minor drainage structures, stray. and bit. 11.51 mi. Mountain View-East Rd., State Hy. 14, Stone Co., **$186,267*****to C. H. Atkinson Paving Co., Chillicothe, Mo., grading, minor drainage structures, c. conc. and remodeling 1 bridge 3.3 mi. Pocahontas City Connection Rd., State Hy. 67, Randolph Co., **$173,965*****to D. B. Hill Co., 115 N. Spring St., Little Rock, grading, minor drainage structures 9.9 mi. on Gilmore-Marked Tree Rd., State Hy. 63, Crittenden and Poinsett Counties, **$119,843**. Grand total $783,557. Bids 10/21. CD 9/12.

●**New Jersey** — State Hy. Dpt., Trenton, constr. Sea Bright Bridge over South Branch of Shrewsbury River Sea Bright-Rumson, Monmouth Co., to Otis Hansen & Sons, Inc., Old Turnpike and Franklin Ave., Pleasantville, **$1,413,587.** Bids 9/15, awarded 10/19. CD 9/19, under LB.

New York—Bureau Contracts & Accounts, Albany, 3 grade separation structures on sect. of Ontario Thruway, east of Buffalo, between Cleveland Dr. and Walden Ave., Erie Co., to W. F. Hendrick Co. Inc., Sidway Bldg. Buffalo, **$786,608.** Bids 9/14. CD 9/19, under LB.

New York—Bureau Contracts & Accounts, Albany, 3 grade separation structures on section Ontario Thruway, East of Buffalo between Walden Ave. and Cleveland Dr., Erie Co., to McLain Constr. Corp., 275 Mayville Ave., Kenmore, **$864,054.** Bids 8/24. CD 8/29, under LB.

South Carolina—State Hy. Dpt., Columbia, rein.-con., structural steel bridges over Southern R.R. and over the P. & N. R.R. on U.S. Route 29, FG-315 (3), Greenville Co., to E. H. Hines Constr. Co. Inc., Greenwood, **$130,507.** Bids 10/7. CD 10/7.

Washington—State Hy. Dpt., Olympia, 2 rein.-con. bridge piers for Cowlitz River Bridge on Primary State Hy. 12, F. A. P. U-004-2 (1), Unit 1, Kelso-Cowlitz Co., to Peter Kiewit Sons, Longview, **$196,914.** Bids 10/21. CD 10/6.

STREETS AND ROADS

BIDS ASKED

November 8

Nebraska—City of Nebraska City, and Dpt. Roads & Irrigation, of State of Nebraska, at office city clk., Nebraska City, c. conc. paving, etc. Central Ave. and 11 St. Proj. No. SF-19903-A and SF-19903-B State Roads., paving Dists. 42 and 43. CD 5/5/44.

November 10

†**Idaho**—Bureau Pup. Roads, General Services Admin., 609½ Bannock St., Boise

Fremont Co.—bit. plant mix 12.082 mi. Warm River Yellowstone Hy., Proj. 34-A14. Plans deposit $10. L.M. Huggins, dist. engr.

November 15

Pennsylvania—Pennsylvania Turnpike Comn., 11 N. 4 St., Harrisburg.

Westmoreland Co. — structures, grading, drainage and paving approx. 1.835 ft. Sect. 31G, Western Exten., Pennsylvania Turnpike, from point approx. 50 ft. west of LR 639 in N. Huntingdon Twp. easterly to point approx. 25 ft. west of LR 64013 in Hempfield Twp. Plans deposit $10. R. B. Stone, c/o owner, ch. engr.

November 17

†**Montana** — P. Rds. Admin., General Services Admin., Morgan Bldg., Portland, Ore.

Flathead Co. — surf., oiling 10 mi. Transmountain hy. from Logan Pass southwesterly in Glacier National Park. Plans deposit $10. W. H. Lynch, div. engr. CD 6/21/43.

November 18

Ala., Mobile—Mobile Co., Bd. Revenue, Mobile, 6 road imprv. projects, incl. 2401 mi. Approx. $100,000. Plans deposit $15. J. B. Converse Co., 106 St. Joseph St., engrs. CD 9/30.

LOW BIDDERS

California—State Div. Hys., Los Angeles, Oct. 20, plans mix on untreated rock surf. on existing pavement and widen. rein.-con. girder bridge over San Gabriel River on 4.2 mi. Firestone Blvd. between Lakewood Blvd. and Rosecrans Ave., Los Angeles Co., from Basich Bros. Constr. Co. & Basich Bros., Box 151, Alhambra, **$410,818.** CD 9/26.

●**California** — State Div. Hys., Sacramento, Oct. 19, plant mix on crusher run surf. 0.2 mi. at Rosewarnes undercrossing 1.5 mi. east of Niles, Alameda Co., from Elmer Warner, 1103 Sycamore St., Stockton, **$55,943*****imported surf. material 5.4 mi. imported base material and applying bit. surf. tr. seal coat between westerly boundary and Carson Pass, Alpine Co., from Johnston Rock Co., Webster Ave. and D St., Stockton, **$266,140*****plant mix on cement treated surf. 3.5 mi. between Cape Horn and Merced Co. line, Santa Clara Co., from Eaton & Smith, 715 Ocean Ave., San Francisco, **$888,193.** CD 9/23.

Calif., King City—City, City Hall, Oct. 14, imprv. streets Proj. 49-1, from Ted F. Baun, 324 Princeton Ave., Fresno, **$211,428.** CD 9/26.

Colorado—State Hy. Dpt., Denver, Oct. 19, grading, oil processing, structures 7.93 mi. State Hy. 135 from point approx. 1.2 mi. south of Almont and exten. north Colo Proj. S 0119 (4), Gunnison Co., from M. J. Sears, Carlton Hotel, Denver, **$197,596**, est $170,815*****grading, surf. 8.75 mi. State Hy. 51 between Burlington and Wray, Colo. Proj. S001 (1), Kit Carson Co., from Brown Constr. Co., 1530 E. Abriendo Ave., Pueblo, **$63,513**, est. **$72,377*****stabilization and gray. 9.18 mi. State Rd. 131, between Oak Creek and Yampa, Routt Co., from Schmidt Constr. Co., Grand Junction, **$97,749** est $114,592. CD 10/4.

†**Idaho**—Bureau Public Rds., General Services Admin., 609½ Bannock St., Boise, Oct. 14, advance clearing 4.472 mi. and grading 1.387 mi. Lewis & Clark Hy., Proj. 16-G, Idaho Co., from Miller & Strong, Inc., Eugene, Ore., **$289,732.** CD 10/6.

Ill., Chicago—City, City Hall, paving N. Sacramento Ave., from West Logan Blvd. to N. Elston Ave., from White Constr. Co., 1831 W. Columbia St., Zone 26, **$209,920.** CD 8/8.

Ill., Chicago—Cook Co., County Bldg., Zone 2, Oct. 18, paving 47 St., LaGrange Rd. to I Ave., from Standard Paving Co., 30 N. LaSalle St., Chicago, Zone 2, **$336,277.** CD 10/10.

Kentucky—State Hy. Dpt. Frankfort, rejected bids Oct. 7, traffic bound surf. 4.649 mi. RS 45-351 Kehoe-Lowder School Rd., Greenup Co., L. B. **$111,891**; traffic bound limestone 1.5 mi. RS 60-258, Caney Creek Rd., Knott Co., L. B. **$63,356**; traffic bound limestone 5.31 mi. RS 61-390 Barbourville-Walker Memorial State Park, Knox Co., L. B. **$61,961**; traffic bound limestone 6.188 mi. RS (89-503) (89-583) (89-602), Graham — Rd. Tearcins Chapel-Vernal Grove Rd.-Clarks Mill Rd., Muhlenberg Co. L. B. **$125,586**; traffic bound surf. 8.34 mi. RS 92-424 Sandefur Crossing Rd., Ohio Co., L. B. **$190,758**; traffic bound limestone 5.093 mi. RS 64-213 Cooksey Creek Rd., Lawrence Co., L. B. **$68,069.** CD 10/13, under LB.

Louisiana—State Dpt. Hy., Baton Rouge, Oct. 19, c. conc. 7.2 mi. St. Bernard Reggio Hy., State Rte. 39, Proj. 39-06, St. Bernard Parish, from T. W. Kleinpetzer, 146 S. Leo St., Baton Rouge, **$166,998.** CD 10/7.

Maryland — State Rds. Comn., Baltimore, Oct. 18, grading, drainage, and surf. 0.6 mi. State Rte. 33, beginning approx. 1.25 mi. north of Easton, easterly via relocation to U. S. Rte. 50, Contr. T-118-2-215, Talbot Co., from Hannaman-Burroughs Co., Salisbury, (1) **$81,600**, (2) **$80,622.** CD 10/11.

New Jersey—State Hy. Dpt., Trenton, Oct. 20, grading, drainage 4.174 mi. Rte 4, Sect. 44, Cape May Co., Delaware Avenue Exten. Fed. Aid Projs. F-8 (2) and F-24 (3)1 Cape May Co., from Reid Contg. Co., P. O. Box 500, Woodbridge, **$323,788.** CD 9/30.

†**New Mexico**—Bureau Pub. Roads, General Services Admin., 254 New Customhouse, Denver, Colo., Oct. 20, 3.286 mi. Forest Proj. 35-42, Alamorgordo-Cloudcroft, Otero Co., from Lowdermilk Bros., 950 W. Dartmouth St., Denver, Colo., **$373,746.** CD 10/5.

Texas—State Hy. Comn., Austin, Oct. 19, grading, structures, storm sewers and c. conc. 0.245 mi. Hy. U.S. 75, in Dallas, U. 515 (13), Dallas Co., from Austin Bridge Co. and Austin Road Co., 1000 Singleton Blvd., Dallas, **$441,757** *****flexible base, single asph. surf. tr. 10.153 mi. Hy. FM 1034, FM 1438 and FM 1041, Proj. S 1245 (1), Childress and Hall Counties from Cooper & Woodruff, Dallas, **$74,257*****flexible base, single asph. surf. tr. 6.115 mi. Hy. FM 333, S. 1101 (1), Colorado Co., from The Jarbel Co., Inc., Insurance Bldg., San Antonio, **$68,538*****flexible base, prime and single asph. surf. tr. 10.226 mi. Hy. FM 315, S. 1011 (2), Henderson Co., from J. R. Ganion Constr. Co. and Rex. D. Kitchens Constr. Co., 608 W. Monroe St., Austin, **$125,959*****flexible base, double asph. surf. tr. 10.269 mi. Hy. FM 1152, S. 1353 (1), Baylor Co., from Stephen Luce & A. L. Sheppard, Vernon, **$73,726*****flexible base, and single asph. surf. tr. 17.647 mi. hy. FM Proj. S 1409 (1), V. 1136-1-1, and V. 1137-1-1, Cameron Co., from E. B. Darby & Co., Pharr, **$224,352*****soil asph. base and single asph. surf. tr. 7.431 mi. Hy. FM 986, S. 1236 (1) and G-642-5-2, Kaufman Co., and cement stabilized base and single asph. surf. tr. 6.166 mi. Hy. FM 916 S. 1197 (1), Johnson Co., from John F. Buckner & Sons, Cleburne, **$75,832** and **$60,253** respectively*****flexible base, asphs. pavement and single asph. surf. tr. 10.832 mi. Hy. FM 281 and FM 1099, F. 166 (3) and (2) and S. 1288 (1), Atascosa and Live Oak Counties, from M. E. Ruby & N. L. Larson, San Marcos, **$271,358.** CD 9/29.

CONTRACTS AWARDED

Ala., Birmingham—City, paving Ensley Ave., to Warren Bros. Road Co., First Natl Bldg., **$95,588**; paving & drng. imprvt. Ordinances 2113-D, 2114-D and 2117-D, to Fred C. Boeing, 1123 Linthicum St., **$60,188.** Bids 10/17. CD 10/6.

Maine—State Hy. Comn., Augusta, surf. tr. gravs. 3.34 mi. Fed. Aid Secondary Proj. S 319 (4) Big Squaw Mtn., and bit. grav. 12.21 mi. Fed. Aid Proj. S 60 (1), Hancock-Franklin, to Thomas Di Cenzo, Calais, **$61,599** and **$53,215** respectively. Bit. grav. 3.076 mi. F.A. Proj. S 303 (2) "Y", Ellsworth and Surry, to The Bridge Constr. Co., Augusta, **$106,587.** Grand total $221,401. Bids 10/19. CD 10/10.

Massachusetts — Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston, F. I. 340 highway, Lenox, to White Oak Excavators, Inc., 61 E. Main St., Plainville, Conn., **$676,-268.** Bids 9/27, awarded 10/13. CD 10/5, under LB.

Massachusetts — Commonwealth of Massachusetts, Dpt. P. Wks., 100 Nashua St., Boston, hy. constr., Holland and Sturbridge to Kelleher Corp., Turner Falls, **$751,272.** Bids 10/18, awarded 10/20. CD 10/6.

Minnesota—State Hy. Dpt., St. Paul, grading and concrete box culverts, 6.5 mi. S. P. 5205-04 (TH 22-22) and S. P. 7207-02 (TH 22-22) to Johnson Constr. Co., Litchfield, **$96,-127**; grading and concrete box culverts, 4.2 mi., S. P. 4107-05 (TH 7 5-6) to Strom Constr. Co., Moorhead, **$142,222.** Bids 10/14. CD 9/28.

New Jersey—State Hy Dpt., Trenton, Rt. 4 Parkway, Sects. 1C and 2D, Middlesex Co., to Union Paving Co., 1227 N. Broad St., Philadelphia, **$794,992.** Bids 10/6, awarded 10/17. CD 10/11, under LB.

●**Pennsylvania**—Pennsylvania Turnpike Comn., 11 N. 4 St., Harrisburg, grading, drainage, structures, paving 3.32 mi. Sect. 31 F, Western Exten. of Pennsylvania Turnpike from approx. 3,850 ft. west of LR 64232 easterly for 17,543 ft. to approx. 295 ft. west of the centerline of Brush Creek, Westmoreland Co., to E. W. Winkelman Co., Heffernan Bldg., Syracuse, N. Y., **$1,365,477.** Bids 10/18, awarded 10/24. CD 10/21, under Bridges, LB.

†**Pennsylvania**—Pub. Roads Admin., General Services Admin., Post Office Bldg., Liberty St. and 2 Ave., Warren, construct 3.414 mi. Pennsylvania Forest Hy. Proj. No. 13-B, Elk and Forest Counties, to Rupp Bros., Inc., Willow St., Box 230, Kittanning, **$123,970.** Bids 9/2, awarded 9/15. CD 8/4.

South Carolina—State Hy. Dpt., Columbia, bit. surf. 10.994 mi. Roads 29, 20 and 34, S-324 (1), Calhoun Co., and bit. surf. 8.664 mi. road 45 from Bowman to U. S. Route 301, S-336 (1), Orangeburg Co., to J. F. Cleckley & Co., Orangeburg, **$72,507** and **$61,093** respectively ***bit. surf. 12.578 mi. Roads 26, 41 and 87 near Airy Hall and Drawdy, S-316 (1), Colleton Co., to Davis Moragne, 301 Gadsden St., Columbia, **$111,696*****bit. surf. 7.213 mi. Route 230 from Road 53 northward to Colleton Co. 114 (5), Edgefield Co., to Lamb Constr. Co., Edgefield, **$79,194*****bit. surf. 10.868 mi. Roads 21, 23, 61 and 76 through 87 in and near Winnsboro, S. C. Dockets 20.229, 20.251 and 20.254, Fairfield Co., to Fox & Green Contractors, Lexington, **$118,292*****bit. surf. 4.642 mi. road 26, S-317 (1), Florence Co., to Wilson Constr. Co., Marion, **$58,179*****bit. surf. 8.601 mi. Roads 57, 43, 44, 85 and 42 near Laurens and Burnt Mill Creek, S-334 (1) and S-335 (1), Laurens Co., to Spotts & Co., Newberry, **$81,-827*****bit. surf. 12.057 mi. Roads 113, 118, 117, 143 through 165, 139, 177 and 178, S-331 (1), etc., Spartanburg Co., to B. L. Jones & Co., Winder, Ga., **$123,510*****bit. surf. 10.233 mi. Roads 58, 36, and 45, S. C. Dockets 44-255 and 44.256, to Suber & Co., Inc., Whitmire, **$88,906.** Grand total $795,206. Bids 10/18. CD 10/2.

Utah—State Road Comn., State Capitol, Salt Lake City, 6.448 mi. 2 in. road mix bit. road surf. between Koosharem and State Road 24, FASP No. S-297 (1), Sevier Co., to L. A. Young Constr. Co., Richfield, **$103,118.** Est. $146,577. Bids 10/11. CD 10/3.

Newfoundland—Government of Newfoundland, St. Johns, rebuilding 30 mi. Pinchgut Road W. J. Laudrigan, Corner Brook West. **$100,000.**

Que., St. Michel—Municipality, paving several streets, to Miron & Brothers Ltd., 2201 Cote St. Michel Rd., Montreal, **$54,575.** J. N. Langellier, 10 St. James St., Montreal, engr.

EARTHWORK, WATERWAYS

BIDS ASKED

November 8

†**Virginia, Florida and North Carolina**—U. S. Eng., 308 Customhouse, Wilmington, N. C., dredging Atlantic Intracoastal Waterway between Norfolk, Va. and St. Johns River, Fla. (Wilmington Dist.) and Beaufort Harbor, N. C., Serial No. CIVENG-31-075-50-15.

November 10

†**South Carolina**—U. S. Eng., Customhouse, Charleston, maintenance dredging, Georgetown Harbor, 27 ft. project, upper 2.5 mi. of Eastern Channel, Sampit River and Sampit River Cutoff, at and near Georgetown, Serial No. CIVENG-38-081-50-7. CD 10/13.

November 15

†**Kentucky**—U. S. Eng., P. O. Box 59, Louisville, Zone 1, flood protection works, Newport, Sect. 2, Part 2, CIVENG 15-029-50-25.

LOW BIDDERS

●†**Idaho**—U. S. Eng., 19 E. Poplar St., Walla Walla, Wash., Oct. 20, 1,154 lin. ft. 23 ft. diam. steel-lined concrete tunnel and 46 ft. rein.-con. tunnel transition section for Lucky Peak Dam, Serial No. CIVENG-45-165-40-20, from Puget Sound Bridge & Dredging Co., 2929 16 Ave. S.W., Seattle, Wash. and Macco Corp., Paramount, Calif., **$1,169,755.** Est. $1,250,611. CD 9/29.

●†**North Dakota**—U. S. Eng., Fort Lincoln, Box 300, Bismarck, Oct. 18, excavation and main embankment, Stage III, Garrison Dam and Reservoir, Riverdale, Serial No. CIVENG-32-015-50-16, from Peter Kiewit Sons Co., 1024 Omaha Natl. Bank Bldg., Omaha, Neb., and Morrison-Knudsen Co., Inc., 319 Broadway, Boise, Idaho, **$5,740,500.** CD 9/21.

†**Pennsylvania**—U. S. Eng., 24 and Maryland Sts., Baltimore, Md., Oct. 18, Williamsport Flood Protection Proj., Levee Unit No. 6B, Williamsport, Lycoming Co., Serial No. CIVENG-18-020-59-7, from Hickey Constr. Co., 12 Engle St., Englewood, N. J. **$306,105.** CD 9/26.

†**South Dakota**—U. S. Eng., 1709 Jackson St., Omaha, Neb., Oct. 18, intake bulkhead frames for Fort Randall Dam Proj. near Lake Andes, Spec. No. CIVENG-25-066-50-29, from Lake-

side Bridge & Steel Co., 3200 W. Villard Ave., Milwaukee, Wis. **$137,496.** CD 9/21.

†Texas—U. S. Eng., 606 Santa Fe Bldg., Galveston, Oct. 20, reservoir clearing Dam "B" site in Neches River Basin, Contr. 3, Inv. No. CIVENG-41-243-50-65, and Contr. 4, Inv. No. CIVENG-41-243-50-66, from Farnsworth & Chambers, Inc., Box 74, Houston, **$264,580** and **$495,900** respectively. CD 10/5.

CONTRACTS AWARDED

●†South Dakota—U. S. Eng., 1709 Jackson St., Omaha, Neb., intake gates for Fort Randall Dam, near Lake Andes, Serial No. Eng-25-066-59-253, to Northeastern Boiler & Welding Co., Green Bay, Wis., **$1,662,425.** Bids 8/26. CD 9/14, under LB.

†Wash., Seattle—U. S. Eng., 4735 E. Marginal Way, Zone 4, dredging Duwamish Waterway, CIVENG-45-108-51-21, to Puget Sound Bridge & Dredging Co., 2929 16 Ave. S. W., **$100,000.** Bids 10/20. CD 9/27.

AIRPORTS AND AIRBASES

BIDS ASKED

November 14

N. Y., Binghamton—LIGHTING AIRPORT—At office, Howard Davis, clk., Bd. Supervs. Broome Co., Broome County Office Bldg., field lighting Broome County Airport. Plans deposit $15; adv. ENR 11/3. CD 1/14/47.

LOW BIDDERS

● Mass., East Boston—TAXIWAYS, etc.—Commonwealth of Mass., State Airport Management Bd., Admin. Bldg., General Logan Airport, Oct. 13, taxiways and apron, from M. DeMatteo Constr. Co., 200 Hancock St., Quincy, **$2,328,874.** CD 10/5.

N. Y., Binghamton — ADMINISTRATION BLDG.—At office Howard Davis, clk. Bd. Supervs., Broome Co., Broome County Office Bldg., Oct. 17, administration bldg., Broome County Airport, from John Kinner, Park Ave., S., Corning, **$275,181.** CD 9/14.

Tex., Dallas — HANGAR, etc. — City, City Hall, Main and Harwood Sts., Oct. 18, hangar, shops, administration bldg., paving, etc., from A. J. Rife Constr. Co., P. O. Box 7086, **$275,888.** Buford & Feinberg, 1801 San Jacinto St., engrs. and archts. CD 12/13/45.

†Va., Gravelly Point—CONTROL TOWER—Pub. Bldgs. Admin., General Services Admin., Lemon Bldg., 1729 New York Ave. N.W., Wash. 25, D. C., Oct. 21, control tower at Terminal Bldg., Washington Natl. Airport, Proj. No. 44-094-6, from F. H. Martell Co., 1023 20 St. N.W., Wash., D. C., **$103,880.** CD 10/4.

CONTRACTS AWARDED

Ala., Gadsden — AIRPORT BUILDING — City, airport administration bldg., to Mayben & Son, Gadsden, **$70,700.**

La., Baton Rouge — ADMINISTRATION BLDG.—City, R. B. Taylor, purch, agt., 211 Court House Bldg., Oct. 18, administration bldg., Hardin Field, to R. F. Farnsworth & Co., Inc., Box 2209, **$182,898.** CD 10/5.

PUBLIC BUILDINGS

BIDS ASKED

November 8

● Md., Owing Mills—POWER HOUSE—State of Maryland, Dpt. P. Imprvts., 200 W. Franklin St., Baltimore, power house and underground utilities, Rosewood State Training School, $1,500,000. Plans deposit $10. Elser & Akers, 916 N. Charles St., Baltimore, engrs.

● Mich., Mt. Pleasant — PHYSICAL EDUCATION—State, Lansing, physical educ. bldg., Central Michigan College, $1,200,000. Roger Allen & Assoc., 1126 Grand Rapids Natl. Bank Bldg., Grand Rapids, archts.

November 9

Fla., Naples—HIGH SCHOOL—Collier Co. Bd. Pub. Instruction Everglades, 30,000 sq. ft., Junior-Senior High School. James A. Stripling & Assoc., Child Bldg., Tallahassee, archts.

November 10

Ia., Clarion—HOSPITAL—Wright Co. Community Memorial Hospital, Clarion, hospital, $275,000. Morgan & Holatt & Assoc., 216-24 F & M Bank Bldg., Burlington, archts. CD 8/9.

Mass., West Springfield — HOUSING—Town of West Springfield Housing Auth., Town Hall, 2 story, bsmnt., 45 duplex residences, veterans housing, Amostown Rd. Tract, $900,000. Plans deposit $20. Paul B. Johnson, 66 Vernon St., Springfield, archt. CD 10/1/48.

Va., Arlington—JUNIOR HIGH SCHOOL—Arlington Co. School Bd., 2732 Wilson Blvd., approx. 1,600,000 cu. ft. Vacation Lane Junior High School between Old Dominion Dr., Vacation Lane and 23 St. North, near Military Rd. Plans deposit $40. Rhees Burket, 1223 Connecticut Ave. N.W., Wash., D. C., archt. CD 8/15.

November 14

Tex., Beaumont — SCHOOL — Beaumont Independent School Dist., Beaumont, brick James Bowie Junior High School, concrete frame and fdn. Golemon & Rolfe, 915 Woodrow Ave., Houston, and Stone & Pitts, 1872 Calder St., archts. CD 10/12.

Wis., Superior — SCHOOL — Bd. Educ., Superior, 2 story school. Hansen & Dobberman, 1225 Tower Ave., archts. CD 2/25.

November 15

Tex., San Antonio — ADMINISTRATION — San Antonio Junior College, 423 S. Alamo St.,

(Continued on page 68)

The Eighth of a Series in the interest of more efficient use of steel . . . a vital American resource

USE PROPER STEEL STRESSES AND SPECIFY LACLEDE MULTI-RIB REINFORCING BARS

Concrete reinforcing steel design stresses of 20000 psi (f_s) are based upon old type plain bars with 40000 psi maximum yield strength . . . A safety factor of 2 at the elastic limit.

Laclede Multi-Rib Reinforcing Bars designed for high anchorage* are produced in steel grades with more than 60000 psi yield strength. Retaining the elastic limit safety factor of 2, a design stress with Multi-Rib high strength reinforcing of *30000 psi is justified.*

Sound engineering design dictates efficient use of materials . . . so why waste every third bar?

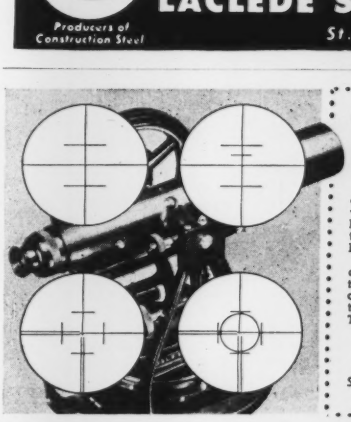
**IN EXCESS OF ASTM A305 REQUIREMENTS AND THE LATEST A.C.I. RECOMMENDATIONS.*

LACLEDE

Producers of Construction Steel

LACLEDE STEEL COMPANY

St. Louis, Mo.



New, Improved Glass Reticles in Gurley Transits Speed Accurate Sighting

Metallic filaments deposited on Gurley glass reticles are sharply defined—equally visible against either very bright or dark backgrounds. Short stadia lines are easy to identify, prevent confusion with regular cross lines.

They're the quick-reading reticles, available in several patterns in Gurley Transits, to suit every surveying requirement and climatic condition. Write today for Bulletin 50. W. & L. E. Gurley, Union Plaza, Troy, New York.

GURLEY

Scientific and Surveying Instrument Makers Since 1845

PRECIPITRON® ADDS REAL VALUE TO YOUR VENTILATING SYSTEMS

Refrigeration Compressors

Axial Flow Fans

Heating and Cooling Coils

BY SAVINGS

PRECIPITRON, the electronic air cleaner, collects 90% of all airborne dust, dirt, and soot particles. Result:

Reduced Waste — Fewer "seconds" and rejects where products are harmed by dust and dirt.

Less Maintenance — Protects walls, ceilings, fixtures and machinery, keeps them cleaner; drastically cuts interior maintenance.

Better Production—Clean, fresh air means happier, more efficient employes.

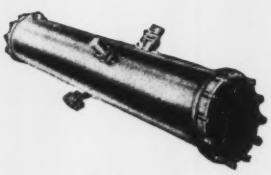
BY OPERATING ECONOMY

PRECIPITRON in a ventilating system means:

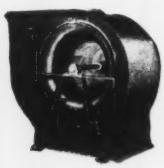
Low Operating Costs—The PRECIPITRON cell has a constant minimum resistance to air flow.

Inexpensive Maintenance—Simply wash out the collected dirt and apply adhesive to restore peak operating efficiency.

Everything that puts air to work for Every application



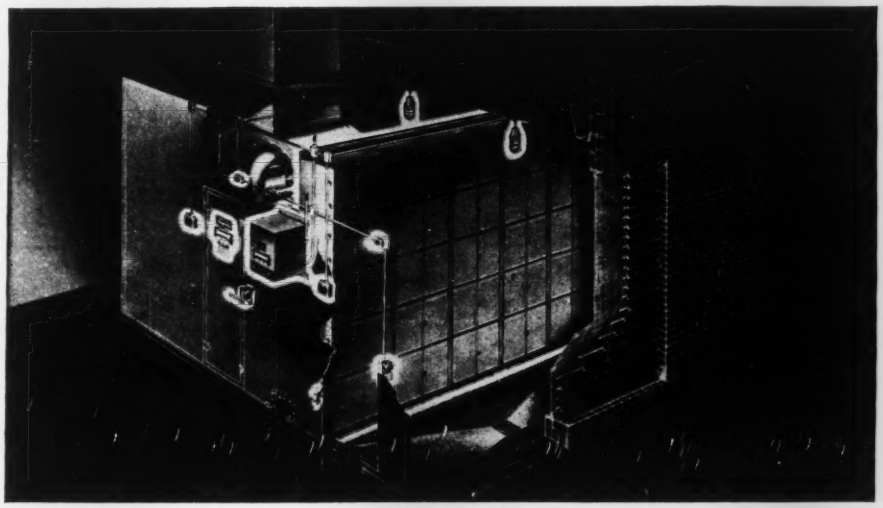
Refrigeration Condensers



Centrifugal Fans

Unit Air Conditioners

*Reg. U. S. Pat. Off. J-80157



Withstands Corrosion — All-aluminum construction has higher resistance to rust and corrosion without protective coatings.

BY QUALITY

The new, all-aluminum PRECIPITRON is more effective than ever.

More Compact — 25% more plate area per cell, a more compact installation that saves valuable space.

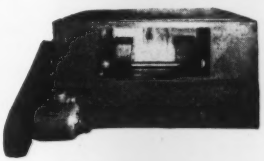
Easy to Install — Building block design makes it easy to assemble, install and maintain; gives greater flexibility of arrangement.

Lightweight — Heaviest piece weighs only 50 pounds, every part except power pack can be handled by one man without special equipment.

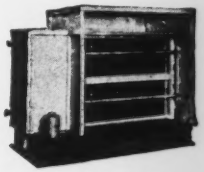
Investigate this new PRECIPITRON for savings and economical operation in your ventilating systems. In the final analysis, PRECIPITRON is not expensive to own or operate when the real value of *truly clean* ventilating air is properly considered. For information, call your nearest Westinghouse office, or write directly to Westinghouse Electric Corporation, Sturtevant Division, Hyde Park, Boston 36, Mass.

Westinghouse
Sturtevant Division

Unit Heaters



Air Handling Units



Surface Dehumidifiers

(Continued from page 63)

2 story masonry, administration bldg., concrete pier and beam fdn., $517,000. Bid date changed. Phelps & De Wees & Simmons, 1501 Majestic Bldg., archts. CD 10/4.

November 17

†California — RESIDENCES, etc. — Bureau Reclamation, Dpt. Interior, 318 Patterson Bldg., Fresno, prefab. residences, utility and laundry and utilities, Central Valley Proj., Spec. R-279, Lindsay, Tulare Co.

LOW BIDDERS

Calif., Culver City—MEMORIAL—City, Oct. 17, 36,000 sq. ft. Veterans Memorial Building, from James I. Barnes Constr. Co., 1119 Montana Ave., Santa Monica, **$478,000.** Est. $400,000. CD 9/27.

●Ill., Maplewood (East St. Louis P. O.) — SCHOOL—School Dist. 187 of St. Clair Co., c/o Bd. Educ., Harold Anglim, secy., Oct. 19, general contract 2 story, bsmnt., brick, rein.-con. Cahokia Commonsfield High School, from J. J. Keeley Contg. Co., 2030 State St., East St. Louis, **$1,791,906;** plumbing and heating, from Alvin G. Fields, 624 Missouri Ave., East St. Louis, **$251,429** and **$324,709** respectively.

Ill., Sheridan—BUILDINGS—State of Illinois, Springfield, Oct. 18, general contract 5 buildings at Sheridan Branch Illinois State Training School for Boys, from Mayfair Constr. Co., 5660 N. Kedzie Ave., Chicago, Zone 20, **$934,000;** plumbing, from Joseph B. Ward, Peru, **$296,747.**

Md., Towson—OFFICE—Comrs. Baltimore Co., Court House, rejected bids Sept. 13, 2 story, 208x208 ft. steel, concrete, brick office. Project postponed indefinitely. CD 9/20.

●Mass., Boston—HOUSING—City of Boston Housing Auth., 10 Post Office Square, Oct. 14, 258 unit veterans housing, Faneuil and Market Sts., Brighton, from John Bowen Co., 129 Newbury St., **$2,347,000.** T. P. McMonough, 25 Huntington Ave., archt. Stewart Assoc., Inc., 38 Memorial Dr., Cambridge engr. CD 9/22.

Mass., South Peabody—HOUSING—City of Peabody Housing Auth., A. Arsenalt, chn., Oct. 19, 68 unit housing, Lynn St., from F. C. Moulan & Sons, Allandale, St., Jamaica, **$643,900.** Gordon E. MacNeill, Cole Hill Rd., Franconia, N. H., engr. CD 10/12.

Minn., Worthington—POWER PLANT IMPRVS.—City, G. S. Thompson, clk., Oct. 11, power plant imprvs. and steam generating units, from Power Service Corp., 711 Wesley Temple Bldg., Minneapolis, **$467,900.** CD 9/9.

O., Cleveland—HOSPITAL—State Dpt. P. Wks., State Office Bldg., Columbus, Oct. 18, 2 wing addn. Cleveland State Receiving Hospital, from Hebing Co., 1382 W. 54 St., **$423,800.** CD 9/22.

O., Warren—HIGH SCHOOL—City, Central Junior High School, from W. B. Gibson Co., Warren, **$646,150.** CD 10/5.

†South Dakota—RESIDENCE—Bureau Reclamation, Dpt. Interior, Lemmon, received no bids Sept. 7, installing utilities and construct one 5 room residence, garage and generator bldg. for Shadehill Govt. camp, Missouri River Basin Proj. Grand Div. Spec. R-6-32 (Region 6). CD 8/24.

Tenn., Memphis—PHYSICAL EDUCATION—At office R. W. Farrell, state purch. agt., State Office Bldg., Nashville, Oct. 19, physical educ. bldg. for Memphis State College, from Dougherty-Liddell Constr. Co., 1360 E. McLemore Ave., **$449,600.** CD 9/27.

Va., Lawrenceville — HIGH SCHOOL — At office B. F. Watson, supt., Lawrenceville, Oct. 18, Consolidated High School for Negroes, for Brunswick Co., from Motley Constr. Co., Farmville, **$524,870.** Dixon & Norman, 1103 E. Main St., Richmond, archts.

Wis., Madison—SCHOOL—Bd. Vocational & Adult Educ., 211 N. Carroll St., Oct. 14, general contract Vocational School alterations, addns., from J. P. Cullen & Sons, Janesville, **$629,530.** CD 9/8.

Wis., Madison—SCHOOL—Bd. Educ., 351 W. Wilson St., rejected bids Sept. 21, 2 and 3 story, bsmnt., irregular Westmoreland Grade School, L. B. **$927,061.** Will re-advertise. CD 9/20, under LB.

CONTRACTS AWARDED

†Calif., Los Angeles—POST OFFICE—Pub. Bldgs. Admin., General Services Admin., F St. between 18 and 19 Sts., N.W., Wash., D. C., post office bldg. addn. at Terminal Annex, to Zoss Constr. Co., 1037 Cole Ave., **$642,600.** Bids 9/27. CD 10/4, under LB.

Calif., Willows — HOSPITAL — Glenn Co., Courthouse, 90 bed rein.-con. hospital, to B. & R. Constr. Co., 110 Market St., San Francisco, **$627,974.** Bids 10/7. CD 10/12, under LB.

Conn., East Hartford — HOUSING — Town, East Hartford Housing Auth., 71 Cannon St., 80 family units, 33 bldgs., 4 and 5 room apartments, Housing MR-23, Riverside Park, to Brooklawn Constr. Co., 254 Prospect Ave., Hartford, **$412,563.** Bids 10/13. CD 9/28.

●Mass., Boston—HOUSING—City of Boston Housing Auth., 10 Post Office Square, 258 unit veterans housing, Faneuil & Market Sts., Brighton, to John Bowen Co., 129 Newbury St., **$2,347,000.** Bids 10/14, awarded 10/20. CD 10/22, under LB.

O., Canton—AUDITORIUM, etc.—City, City Hall, 172x302 ft. concrete floor memorial arena and auditorium, to Warren Hoffman Co., Renket Bldg., **$671,470.** Est. $900,000. CD 9/20, under LB.

S. C., Spartanburg—SCHOOL—Spartanburg Co., Spartanburg, Cleveland Junior High School and Carver High School, to W. M. Fine, Spartanburg, **$570,320.** Bids 10/18. CD 9/26.

Tex., Freeport—HIGH SCHOOL, etc.—Brazosport Independent School Dist., Freeport, Oct. 19, masonry high school and rein.-con. swimming pool, from Farnsworth & Chambers, Inc., P. O. Box 74, Houston, **$851,947** and **$78,000** respectively. Emery S. White, M & M Bldg., Houston, archt. W. P. Moore, 4605 Montrose St., structural engr. Dale S. Cooper & Assoc., 4605 Montrose St., Houston, mechanical engrs.

Tex., Kermit—HIGH SCHOOL—Kermit Independent School Dist., Kermit, high school, to J. G. Ryan Constr. Co., P. O. Box 541, Artesia, N. M., **$782,860.** Bids 10/18. CD 10/7.

COMMERCIAL BUILDINGS

BIDS ASKED

November 18

La., Lafayette—HOTEL—Neild & Samdal, archts., Texas Eastern Bldg., Shreveport, 6 story, rein.-con. hotel addn. for Evangeline Hotel, Lafayette. Plans deposit $25.

Bids Asked

Calif., Fort Ord—HOUSING UNITS—Commanding Officer, 6th Army, Presidio of San Francisco, San Francisco, 600 housing units, for Fort Ord and Prediido of Monterey personnel. Project will be constructed, financed and managed by private company.

Colo., Denver — HOUSING — Commanding Officer, 5th Army, Chicago, Ill., 200 housing units at Fitzsimmons General Hospital. Project will be constructed, financed and managed by private company.

Conn., Mystic—TELEPHONE EXCHANGE—Southern New England Telephone Co., 227 Church St., New Haven, 2 story, 60x65 ft., brick, steel, granite, limestone telephone exchange bldg., dial equip Douglas Orr, 96 Grove St., New Haven, archt. CD 7/15.

Pa., Phoenixville—HOUSING—Commanding Officer, 2nd Army, Fort Meade, Md., 100 housing units at Valley Fort General Hospital. Proj. will be constructed, financed and managed by private company.

SOON LETS CONTRACT

●Ala., Birmingham—APARTMENT—Marvin Warner & Joe Kanter c/o Pembleton & Mims, archts., Title Guarantee Bldg., Birmingham, soon lets contract 10 story apartment. $1,000,000. CD 10/6.

Ala., Florence—STORE—Sears, Roebuck & Co., Ponce De Leon Ave., Atlanta, Ga., soon lets contract retail department store. F. E. Davidson, c/o owner, archt.

Calif., Claremont—GYMNASIUM—Pomona College, Claremont, soon lets contract 1 and 2 story, 30,500 sq. ft. memorial gymnasium. $260,000. Wallace Neff, 5927 Franklin Ave., Los Angeles, archt.

Calif., Taft—OFFICE—Standard Oil Co., Standard Oil Bldg., San Francisco, soon lets contract frame, stucco production dept. office bldg. $100,000. Allison & Rible, 625 S. Westmoreland St., Los Angeles, archts.

Colo., Denver—SCHOOL—Parish of Blessed Sacrament, Rev. Harold V. Campbell, 4930 Montview Blvd., Denver, soon lets contract 2 story, bsmnt., school, $250,000. John F. Connell, 2445 Cherry St., archt. and engr. CD 8/8.

Ill., Chicago — OFFICE — Foote, Cone & Belding, 919 N. Michigan St., soon lets contract modernizing 6 story office bldg. $500,000. Friedman, Alschuler & Sincere, 223 W. Jackson St., archts.

Miss., Hattiesburg—SCHOOL, etc.—Sacred Heart Parish, c/o Landry, Matthes, Cluchaus & Assoc., archts., 214 W. Pine St., soon lets contract, school and convent 42,000 sq. ft.

Mo., St. Louis — ADMINISTRATION — St. Louis Municipal Theatre Assn., J. M. Lashly, pres., and Paul Belsman, mgr., 1876 Arcade Bldg., 812 Olive St., Zone 1, soon lets contract 2 story administration bldg. Study, Farrar & Majers, Arcade Bldg., 812 Olive St., Zone 1, archts. CD 10/7/47.

●Tenn., Nashville—HOUSING—Colonial Village Corp., c/o Faires & Sanford, archts., 45 Porter Bldg., Memphis, soon lets contract 146 housing units. Approx. $1,000,000.

●Tenn., Nashville—OFFICE, etc.—Nashville Electric Service, 605 Church St., soon lets contract office and service center. Approx. $1,000,000. CD 8/8.

Tex., Houston—OFFICE—Cravens, Dargen & Co., 1205 Holman St., soon lets contract 2 story, bsmnt., 40,000 sq. ft. office, $400,000. Wyatt C. Hedrick, 5201 Fannin St., engr. and archt. CD 10/20.

Ont., St. Catherines—SANITORIUM—J. R. Wiley, archt., 32 William St., soon lets contract sanitorium unit, for Niagara Peninsula Sanatorium, Merriton Hy.

Ont., Newtonbrook — HOSPITAL — Mathers & Haldenby, archts., 12 St. Mary St., Toronto, soon let contract 100 bed hospital addn., Cummer Ave., for Sisters of St. John the Divine, Newtonbrook, Approx. $500,000. CD 10/17/48.

LOW BIDDERS

Conn., Manchester—HOSPITAL—Manchester Memorial Hospital, 71 Haynes St., Oct. 18, 3 story, bsmnt., brick, steel 44 bed hospital addn., Haynes St., from New England Contg. Co., 500 Blue Hills Ave., Hartford, **$622,000.** CD 10/17.

●Kan., Kansas City — HOTEL — Wyandotte Hotel Co., 3552 Wood St., Oct. 10, hotel, from Swenson Constr. Co., 3305 Terrace St., Kansas City, Mo., **$2,035,856.** CD 10/4.

Mo., Springfield—CHURCH—First Baptist Church, c/o Pastor, South and Elm Sts., Oct. 4, 96x200 ft., steel church 50 ft. high, and 150 ft. tower, from W. R. Grimshaw Co., Hunt Bldg., Tulsa, Okla., **$630,989.** CD 9/13.

O., Cleveland—CONVENT, etc.—St. Jerome's Roman Catholic Church, 15101 Lake Shore Blvd., convent, Ridpath Rd.; church and memorial tower, E. 151 and Lake Shore Blvd. from Wm. H. Dick Co., 17206 Miles Ave., **$470,000.** CD 12/13/48.

CONTRACTS AWARDED

●Ala., Montgomery—APARTMENT UNITS—Allen N. Smith, c/o contractor, 250 apartment units, to Algernon Blair, 1 Natl. Bank Bldg., Approx. **$1,000,000.**

Conn., Thompsonville—HOUSES—J & F Home Improvement Co., Windsor, 50 single frame houses, Colony Acres Project, Enfield St. Owner builds. **$400,000.** CD 10/20.

●D. C., Wash.—HIGH SCHOOL—Archdiocese of Washington, 1719 Rhode Island Ave., red brick Catholic high school for boys, 3 wings 21 classrooms, 3 laboratories, cafeteria faculty chapel, dining room, library, auditorium, gymnasium, admin. office, library, and student chapel, 4300 Harewood Rd. N.E., to Irons & Reynolds, 1701 H St. N.W., **$1,346,395.** Bids 10/11. CD 10/13, under LB.

●D. C., Wash.—APARTMENTS—Ian Woodner, Ring Bldg., constr. Rock Creek Plaza Apartments, 3636 Sixteenth St. N.W., to Jonathan Woodner Co., 12000 18 St. N.W., **$5,000,000.** Wallace F. Holladay, 1116 S. Thomas St., Arlington, Va., archt.

Fla., Jacksonville—HOMES—Florida Model Homes, Inc., 7246 Lem Turner Rd., 34 family homes new section of Homesdale in Northwest Section of Duval Co., and 40 family homes Homesdale Section of Northwest Duval Co., Fire Constr. Co., c/o owner, **$250,000** and **$288,000** respectively.

Ga., Atlanta — APARTMENT — Peachtree Hills Apartment Corp., c/o contractor, apartment, to J. A. Jones Constr. Co., Walton Bldg., Approx. **$500,000.**

Ill., Chicago—APARTMENT—Hyde Park Bldg. Corp., 1201 Hyde Park Blvd., Zone 7, 5 story 60 unit concrete framing, brick apartment, concrete floors, to Henning & Johnson & Sons, 7640 S. State St., Zone 19. **$450,000.** Awarded 10/11. Lowenberg & Lowenberg, 111 W. Monroe St., Zone 3, archts.

Ill., Elgin—HOSPITAL—Sherman Hospital, 934 Center St., 5 story, bsmnt., steel, concrete, brick hospital south wing addn., to Peter Hamlin Constr. Co., 9 S. Clinton St., Chicago, Zone 6, **$790,000.** Awarded 10/17. CD 6/20.

Ill., Worth—RESIDENCES—J. E. Merrion & Co., 2015 W. 79 St., Oct. 17, 50 duplex residences, 9000 Ryan Rd., 4000 W. 90 St., 4200 W. 90 Place. Owner builds. **$550,000.**

Mo., St. Louis — HOSPITAL — Frisco Employees' Hospital Assn., Bd. of Trustees, John T. Williams, bus. mgr., 4960 Laclede Ave., Zone 12, Oct. 11, general contract hospital alterations, 4 story bsmnt. 43½x65 ft. South center wing addn., 4 story 16x20 ft. north solarium addn., for hospital, to J. S. Alberici Constr. Co., 1550 Irving Ave., Zone 20, total cost **$400,000.** CD 10/5.

●Mo., St. Louis — APARTMENT — Lancamp Realty Corp., Anthony Campaign, Bd. Chn., and c/o Donald J. Meyer, atty., 704 Olive St., Zone 1, 15 story, rein.-con., brick, steel, stone apartment, Kingshighway Blvd. and New Forest Park Blvd. and Laclede Ave., to Thompson-Starrett Co., Inc., 120 W. 60 St., New York, N. Y., and A. H. Stiel, 813 Chestnut St., St. Louis, Zone 1. Approx. **$3,500,000.** Candela & Resnick, 654 Madison Ave., New York, N. Y., archts. Wells & Wells, Inc., Security Bldg., 319 N. 4 St., Zone 4, engr.

Mo., St. Louis County (St. Louis, S. P. O.)—RETREAT HOUSES—Sisters of the Cenacle, Rev. Mother Donohue, 7338 Natural Bridge Rd., Normandy, St. Louis, Zone 21, Oct. 14, general contract 2 story, bsmnt., brick retreat house, 44 acre tract, Conway and Spoede Rds., to Robert Paulus Constr. Co., 2457 Morganford Rd., St. Louis, Zone 16, **$405,161.**

N. C., Gastonia—HOSPITAL—Gaston Memorial Hospital, Inc., Gastonia, general contract general hospital, to Barger Bros Co., Mooresville, **$599,495.** Bids 9/15. CD 9/20, under LB.

●O., Cleveland—HOMES—Marvin Helf, 2100 Green Rd., South Euclid, one hundred thirty-eight, and 1½ story, bsmnt., frame homes, Hinsdale, N. Green and Hornwood Rds., separate contracts. **$1,380,000.**

O., Cleveland—HOMES—M. N. Helper & Son, Inc., 4118 Lee Rd., forty 1 and 1½ story frame homes, Ridgton Blvd., separate contracts. Approx. **$400,000.**

O., Cleveland—HOMES—Jacob Marony, 3285 Berkshire St., Cleveland Heights, 40 1½ story, bsmnt., brick homes, W. 117 and W. 116 Sts. off Lorain Ave., separate contracts. **$400,000.**

O., Cleveland—HOMES—Merrick & Kleist Constr. Co., 1360 Bount St., Rocky River, 100 one story, no bsmnt., frame homes. Rocky River Dr., and Maplewood Rd., separate contracts. **$700,000.**

O., Cleveland—HOMES—Montrose Constr. Co., 13428 Cedar Rd., Cleveland Heights, 67

one story frame homes, Longmead, McGowan, Lena, Kirton, Bennington, Astor and Erwin Sts., separate contracts. **$435,000.**

O., North Olmsted—HOMES—N. E. Malnar, 22591 Lorain Ave., Fairview Park, 60 one story, no bsmnt, frame homes, Andrews, Lucydale and Whitethorne Sts., separate contracts. **$570,000.** CD 8/5.

●**O., Rocky River**— HOMES — Rocky River Building Co., 2932 Wooster Rd., 75 one story, no bsmnt., brick, frame homes, Westover and Carroll Blvds., separate contracts. **$1,500,000.**

Tenn., Chattanooga—APARTMENT—Glenwood Park Apartments Co., c/o contractor, 15 apartments, to Lindsey-Davis Co., Inc., 401 N. Market St. Approx. **$555,000.** CD 9/16.

Tex., Dallas—DWELLINGS—O. J. Parrot and Frances R. Lee & Assoc., Lawnview and Seyene Rd., 150 dwellings, own forces. **$650,000.** CD 10/9/47.

Tex., Houston—DWELLINGS—Dryden Corp., 1204 W. Gray St., 50 dwellings, own forces. Approx. **$452,000.** CD 9/30.

Tex., Houston — APARTMENT — King & Sheets Co., City Natl. Bank Bldg., 100 efficiency apartment units. Owner builds. Approx. **$350,000.** CD 10/13.

Tex., Pasadena—DWELLINGS—Charles R. Olds & Assoc., 3425 University St., Houston, 100 dwellings, 395 acre tract. **$175,000;** 75 duplexes, on 395 acre tract. **$375,000,** own forces. CD 4/8.

Tex., San Antonio—HOUSING—Acme Lumber & Supply Co., Inc., 1001 Austin St., housing, to Johnnie Chuoke, 109 Tuttle St., Approx. **$475,000.** CD 10/13.

Tex., San Antonio — HOSPITAL — Baptist Memorial Hospital, Inc., 215 Camden St., maternity hospital, to H. J. Von Rosenberg, 330 Melrose Pl., **$710,400.** Bids 10/5. CD 10/11, under LB.

Wash., Olympia — APARTMENTS — L. E. Baldwin, et al, 3872 50 Ave. N.E., Seattle, 6 story, bsmnt., rein.-con. Maple Vista Apartments, day labor. **$675,000.** F. J. Rogers, 166 Roy St., Seattle, archt. CD 10/20.

Wash., Spokane—HOUSES—Vincent Buck, W. 2311 Olympic St., 59 houses at Columbia and Lindeke, northwest of Shadle Park, in Ridgewood Homes, day labor, **$401,200.** CD 9/26.

●**Que., Montreal**—HOUSING—Cosmos Quebec Ltd., 719 Wilseman Ave., 20 housing units, at Cote de Liesse Rd. Owner builds, **$5,000,000.** E. Vincelli, 429 Jean Talon W., archt.

INDUSTRIAL BUILDINGS

BIDS ASKED

November 9

Ga., Atlanta—WAREHOUSE—The Grinnell Co., c/o Stevens & Wilkinson, archts., 157 Luckie St. N. W., 1 story 172x224 ft. warehouse. Approx. $75,000. Plans deposit $30.

November 10

Tenn., Nashville — PLANT — Newspaper Printing Corp., c/o Marr & Holman, archts., Stahlman Bldg., 4 story, 100x172 ft. printing plant. Approx. $100,000. CD 1/27.

About November 15

Miss., Jackson — PLANT — Swift & Co., Union Stockyards, Chicago, Ill., curing and distr. plant, $150,000.

SOON LETS CONTRACT

Ala., Phenix City—HOSIERY MILL—Shalon Joseph, c/o Lorin D. Raines, archt., 2443 Wynnton Rd., Columbus, Ga., soon lets contract hosiery mill, Approx. $100,000. CD9/26.

Ark., Magnolia—PLANT—Magnolia Ice & Coco Cola Bottling Co., Magnolia, soon lets contract and 2 story, 83x116 ft. bottling plant, Approx. $68,000. Reinheimer & Cox, Texarkana Natl. Bank Bldg., Texarkana, archts.

Ga., Alamo—WAREHOUSE, etc.—The Little Ocmulgee Electric Membership Corp., Alamo, soon lets contract warehouse and office, Approx. $68,000. Southern Eng. Co., 699 Spring St. N. W., Atlanta, archts.

Ga., Atlanta—WAREHOUSE, etc.—Equipment Sales Co., c/o Locatell, Norris & Co., archt., 664 Spring St. N. W., soon lets contract warehouse and office.

Ga., Atlanta—SALES and SERVICE—Radal Corp., c/o George L. Dahl, archt., 2101 N. St. Paul St., Dallas, Tex., soon lets contract truck sales and service bldg. Approx. $100,000.

Ga., Monroe—MILL—Monroe Cotton Mills, Monroe, soon lets contract mill addn. J. E. Sirrine Co., Greenville, S. C., archt.

Miss., Stonewall—WEAVE—Erwin Cotton Mills, c/o Lockwood Green Engineers, archts., Spartanburg, S. C., soon lets contract weave bldg. and extension to Bldg. 2.

Tex., League City—WAREHOUSE—T. A. Kilgore & Co., League City, soon lets contract 98x224 ft., steel, precast concrete walls, warehouse, air-conditioning. $90,000. A. C. Kellersberger, 601 W. 13 St., Austin, engr.

LOW BIDDERS

Calif., San Francisco—STORAGE CELLAR—Regal Amber Brewing Co., 675 Treat St., Oct. 18, 5 story, steel, concrete storage cellar, from Barrett & Hilp, 918 Harrison St., **$330,821.** CD 10/17.

Ill., Kankakee—PLANT—Kankakee Journal, 195 N. Schuyler Ave., Aug. 5, newspaper plant addn., incl. broadcasting station, from J. S. Willis Co., Hays Bldg., Janesville, Wis., **$381,818.** CD 8/1.

Mo., St. Louis—WAREHOUSE—Barada & Page, 2 and Penrose Sts., postponed indefinitely, 1 story, 31x125 ft., brick, concrete warehouse and office bldg., alterations, addns. Study, Farrar & Majers, Arcade Bldg., 812 Olive St., Zone 1, archts. CD 4/11.

Mo., St. Louis—PLANT—H. Wenzel Tent & Duck Co., 1035 Paul St., rejected bids June 21, 1 story, part bsmnt., 100x121 ft. and 37x55 ft. L-shaped concrete block, steel plant addn., 1035 Paul St. Will readvertise. Frank L. Thompson, 104 W. Adams St., Kirkwood, St. Louis P.O. Zone 22, archt. CD 6/8.

CONTRACTS AWARDED

Ill., Chicago — PLANT, etc. — Borden Co., 2235 S. Van Buren, Zone 12, plant addn., alterations, to La Salle Constr. Co., 343 S. Dearborn St., Zone 4, Approx. **$135,000.** Bids 9/15, awarded 10/14. CD 8/26.

Ind., East Chicago — PLANT—E. I. Dupont de Nemours & Co., 5214 Kennedy St., design and construction sulphuric and freon chemical plant addn., to F. H. McGraw & Co., 109 N. Wabash St., Chicago, 2, Ill., Approx. **$200,000.**

Ind., Fort Wayne — PACKING PLANT — Eckrick & Sons, Inc., H. J. Eckrick, pres., Osage and Richardson Sts., 2 story, bsmnt., brick, rein.-con packing plant addn., to Max Irmscher & Sons, Inc., 1113 Fort Wayne Bank, Approx. **$167,000.** Awarded 10/18. Pohlmeyer & Pohlmeyer, 262 Central Bldg., archts.

La., New Orleans—WAREHOUSE—Southern Scrap & Material Co., c/o contractor, warehouse, to E. B. Ludwig Constr. Co., 1350 Jefferson Hy., Approx. **$70,000.**

Md., Baltimore—MANUFACTURING—Procter & Gamble Mfg. Co., Gwynne Bldg., Cincinnati, O., 3 story, 42x122x136 ft., steel, masonry mfg. bldg., to The H. K. Ferguson Co., Ferguson Bldg., Cleveland, 14, O., **$240,575.** CD 9/13.

●**Mo., St. Louis**—PLANT, etc.—J. D. Street & Co., K. C. Baker, pres., 4055 Park Ave., Zone 10, construction plant and petroleum storage facilities, incl. 6 storage tanks, 7,560,000 gal. total capacity; three buildings, addns., 90x100 ft., 45x114 ft. and 60x102 ft. respectively, river dock facilities and railroad sidings, grading about 2,500 sq. yds. asph. surf., etc., on 30 acre tract between Missouri Pacific R.R. tracks and Mississippi River at Jefferson Barracks south of here, to Murch-Jarvis Co., Inc., 718 Locust St., Zone 1, Approx. **$1,000,000.** Frank L. Thompson, 104 W. Adams St., Kirkwood, Zone 1, archt. CD 10/10.

Mo., St. Louis County—FACTORY, WAREHOUSE, etc. — California Spray Chemical Corp., 5 Forsyth Walk, Clayton, Zone 5, 1 story, 80x140 ft. concrete block factory, warehouse, and office, Adie Rd. and Rock Island R. R. tracks in Maryland Heights, to S. M. Studt, 5 Forsyth Walk, Clayton, St. Louis, Zone 5.

Neb., Norfolk — BOTTLING PLANT—Seven Up Bottling Co., 13 and Michigan Ave., bottling plant addn. Owner builds. Approx. **$75,000.**

Neb., Omaha — PLANT — Raznick Bros., Jack Raznick, pres., 3021 S. 32 St., meat packing plant, 4600 S. 36 St., to Mainelli Constr. Co., 4502 S. 36 St., **$200,000.**

N. C., Charlotte — PLANT — Lance, Inc., Phil Van Every, pres., 1304 South Blvd., plant addn., South Blvd., to McDevitt & Street Co., Builders Bldg., **$148,540.** J. N Pease & Co., 119½ E. 5 St., archts.

N. C., Durham—PLANT—Liggett & Myers Tobacco Co., c/o contractor, remodeling old cigarette mfg. plant to J. A. Jones Constr. Co., 209 W. 4 St., Charlotte. Approx. **$115,000.**

N. C., Raleigh — WAREHOUSE — Colonial Stores, Inc., c/o Robert & Co., Assoc., archts., 96 Poplar St. N. W. Atlanta, Ga., grocery storage warehouse, to J. A. Jones Constr. Co., 209 W. 4 St., Charlotte. Approx. **$200,000.** Bids 9/30. CD 9/28.

N. C., Shelby—MILL—Dover Mill Co., Shelby, mill addn., to Fiske-Carter Constr. Co., Greenville, S. C. Approx. **$68,000.** Bids 10/11. CD 10/4.

O., Cleveland—PLANT—Standard Products Co., 2130—W. 110 St., 2 story plant, 1 story office, brick, steel constr., to Hamann Constr. Co., 25010 Lakeland Blvd., Euclid, **$300,000.** Edward G. Hoefler, 5005 Euclid St., archt. and engr.

O., Parma—SALES and SERVICE—Looney & Reed, Inc., 3488 W. 25 St., Cleveland, 2 story, brick, steel sales and service bldg., 6615 Brookpark Rd., to J. Vargo Co., 3415 E. 9 St., Cleveland, **$80,000.** Awarded 10/18. Roland B. Johns, 1432 Schofield Bldg., Cleveland, archt.

O., Toledo—WAREHOUSE, etc.—R. E. Ansted Co., 9 N. Huron St., 1 story warehouse and office, Westwood Ave., to Paul C. Peters Co., 3656 Torance Dr., Approx. **$120,000.** Est. $100,000. Bids 10/21. CD 10/14.

S. C., Charleston—PLANT—Owner, c/o contractor, machinery mfg. plant, to N. W. Todd Eng. & Supply Co., 316 E. Bay St. Approx. **$150,000.**

Tenn., Fayetteville—MILL—Elk Cotton Mills, Fayetteville, cotton mill addn., to Triangle Constr. Co., Greenville, S. C., Approx. **$200,000.** The McPherson Co., Greenville, S. C., archts. Bids 10/10. CD 9/28.

Tenn., Knoxville—ROUNDHOUSE—Southern Railway System, c/o R. F. Logan, ch. engr. Maintenance, Ways and Structures (Central Lines) 101 N. Gay St., railroad roundhouse addns. to Brice Building Co., 130 S. 13 St., Birmingham, Ala., Approx. **$175,000.**

Tex., Galveston—BOILER WORKS UNIT—Kane Boiler Works, Inc., 200 27 St., boiler works unit, to Thomas Bate & Sons, 1107 Girard St., Houston, Approx. **$147,000.** CD 10/17.

Tex., Wichita Falls — WAREHOUSE — Nutrena Mills, 406 Sixth St., warehouse, to J. L. Hair Constr. Co., City Natl. Bank Bldg., **$82,672.** Jesse G. Dixon, 913-B Indiana St., archt.

Va., Portsmouth—PLANT—T. O. Williams, Inc., c/o contractor, meat products plant, to Robert R. Marquis, 2229 County St. Approx. **$75,000.**

Va., Richmond—BAKERY PLANT—Nolde Bros., Inc., 2520 E. Broad St., steel, brick structures, incl. 2 story, bsmnt. bakery plant addn., to James Fox & Sons, 2501 E. Franklin St. **$200,000.**

Wash., Seattle — WAREHOUSE—Standard Oil Co. of California, 225 Bush St., San Francisco, Calif., oil storage warehouse, to B. F. Turnbull, 4351 Leary Way, Zone 7, Approx. **$400,000.** B. T. Bjornstad, c/o owner, engr. CD 9/1.

Wis., Milwaukee — FACTORY—Allen-Bradley Co., 136 W. Greenfield Ave., Zone 4, 8th story, 140x250 ft. and 11x24 ft. concrete, brick, block factory addn., to Selzer-Ornst Co., 6222 W. State St., Wauwatosa, Zone 13, Approx. **$200,000.** Fitzhugh Scott, 724 E. Mason St., Zone 2, archt.

●**Ont., London**—PLANT—General Diesel Motors Co., East Oxford St., 1 story, 370x528 ft. structural steel, diesel engine plant, 2 story office and 70x90 ft. power plant, E. Oxford St., to Frid Constr. Co., Ltd., 128 King St. East, Hamilton. Total est. **$5,000,000.** CD 8/8.

Ont., Toronto — WAREHOUSE — Pease Foundry Co., Ltd., 227 Victoria St., concrete, brick warehouse, to Mollenhauer Contg. Co. Ltd., 188 Perth Ave., Approx. **$70,000.** Bids 8/2. CD 7/22.

Que., Montreal—FACTORY—W. Dussureault, 7987 LaCegueuse St., 75x75 ft. concrete furniture factory, day labor, **$70,000.**

UNCLASSIFIED

BIDS ASKED

November 8

Kansas—RURAL DISTRIBUTION LINES—Co-operative Electric Power & Light Co., Iola, 161.06 mi. rural distr. lines and 54.5 mi. conversion, Coffey, Anderson, Woodson, Allen, Wilson and Neosho Counties. Bids 9/22 rejected. L.B. **$215,397.** Frank Horton & Co., Lamar, Mo., engrs. CD 10/11, under LB.

November 9

N. C., Concord—RECREATION CENTER—At office Supt. City Schools, Concord Recreation Comn., T. N. Spencer chn., Concord, recreation center, incl. music dept. for high school. $200,000. Plans deposit $25. A. G. Odell, Jr. & Assoc., 213 Latta Arcade, Charlotte, engrs. and archts. CD 3/17/48.

November 10

†**Arizona and Nevada**—STEEL STAIRWAYS, etc.—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point or f.o.b. cars Kingman (Latbe), Ariz., steel stairways and handrails for generator units and shaft enclosure for intake structure, Davis Power Plant, Davis Dam Proj., Spec. 2815. L. N. McClellan, ch. engr.

SOON LETS CONTRACT

Fla., Miami—DRIVE-IN THEATER—Le Jeune Auto Theatre, c/o Irving Horsey, archt., 820 N. E. 125 St., North Miami, soon lets contract drive-in theater, Approx. $50,000.

South Carolina—RURAL DISTRIBUTION LINES—Palmette Electric Co-operative, Ridgeland, soon lets contract 116 mi. rural distr. lines and 40.49 mi. conversion, Allendale, Hampton, Jasper and Beaufort Counties. Plans deposit $25. Southern Eng. Co., 699 Spring St. N. W., Atlanta, Ga., engr. CD 5/20.

Texas—RURAL DISTRIBUTION LINES—Coleman County Electric Co-operative, Coleman, soon lets contract, 164.54 mi. rural distr. lines, 6.97 mi. conversion, Coleman, Runnels, Concho, Coke and Brown Counties. $158,000. Freese & Nichols, 407 Dancigar Bldg., Fort Worth, engrs. CD 10/21.

LOW BIDDERS

†**California**—STEEL TOWERS—Bureau Reclamation, Dpt. Interior, Box 2511, Sacramento, Oct. 18, steel towers for 230-kv transmission lines, Shata-Tracy West Side Lines, Double Circuit steel towers for Central Valley Proj., Spec. R2-7, from American Bridge Co., Frick Bldg., Pittsburgh, Pa., **(I) $571,179, (II) $594,926, (III) $575,605.**

Calif., San Francisco — RECREATION BUILDINGS—Recreation Comn. of City and San Francisco Co., 61 Grove St., Oct 18, 4 rein.-con. recreation bldgs. Potrero Hill, Ocean View, St. Mary's and Sunset Playgrounds, from Carrico & Gautier, 365 Ocean Ave., **$832,000.** CD 10/4.

†**Colorado**—TRANSMISSION LINE—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., Oct. 18, Yuma-

Wray 69-kv transmission line, Colorado-Big Thompson Proj., Spec. 2786, Schedule (1), aluminum conductor, from Utilities Constr. Co., Exchange Bldg., Nashville, Tenn., **$131,-140*****Schedule 2, stranded copper conductor from Lake Electric Co., Devils Lake, N. C., **$167,194*****Schedule 3, copperweld-copper conductor, from J. R. Foree Natl. Bank of Topeka Bldg., Topeka, Kan., **$119,704.** CD 9/20.

La., New Orleans—TERMINAL FACILITIES—New Orleans Passenger Terminal Comn., 501 S. Saratoga St., Oct. 14, temporary platforms, canopies, paving, steam, air, gas, water, drainage and electrical facilities, Union Passenger Terminal Station, from Keller Constr. Co., 7900 Palm St., **$171,545.** CD 10/4.

Md., Baltimore—SWIMMING POOL—Dpt. P. Wks. & Recreation, Druid Hill Park, Oct. 28, swimming pool, Roosevelt Park, 36 and Falls Rd., from Chas. R. Scrivener Co., Inc., 339 St. Paul Pl., **$122,227.** R. E. L. Williams, 410 Municipal Bldg., bldg. constr. engr. CD 10/19.

N. Y., New York—RECREATION CENTER—Dpt. Parks, Arsenal Bldg., Central Park, 64 St. and 5 Ave., Zone 21, Oct. 11, general contract, heating and ventilating, plumbing and electrical work for recreation center in St. Marys Park, St. Ann's Ave. and St. Mary's St., Bronx Boro, Contr. X-45-147-A, from Rubin Constr. Co., 11 W. 42 St., Zone 18, **$807,402.** CD 9/28.

Oklahoma—RURAL DISTRIBUTION LINES—Northeast Oklahoma Electric Co-operative, Vinita, 290 mi. rural distr. lines, Craig, Co., from Turner Electric Co., Shawnee, **$305,600,** Est. $310,000. W. R. Holway, 302 E. 18 St., Tulsa, engr. CD 6/4/48.

Tex., Galveston—ELECTRIC SYSTEM—Medical Branch, University of Texas, 104 Main Bldg., University of Texas, Austin, Oct. 19, electric wiring sys., from Pfeiffer Electric Co., Laporte, **$171,898.** CD 9/20.

CONTRACTS AWARDED

●**Arkansas and Texas**—GAS PIPELINE—Arkansas-Louisiana Gas Co., Slattery Bldg., Shreveport, La., 90 mi. 20 in. welded joint natural gas pipeline between Magnolia area and Perla, Ark., to Latex Constr. Co., 2707 Ferndale St., Houston, Tex.***72 mi. 20 in. welded joint natural gas pipeline between Marshall, Tex. and point in Columbus Co., Ark., to Anderson Bros. Corp., 707 N. Drennen St., Houston, Tex.***installing Red River and Wachita River Crossings, to Omaha Dredge & Dock Co., 808 Douglas St., Omaha, Neb., Approx. **$7,900,000.**

Conn., East Haven—BEACH DEVELOPMENT—Garkin, Inc., c/o Harold H. Davis, archt., 29 Whitney Ave., New Haven, beach development, incl. club, bathing beach, bathing house, swimming facilities, cabanas, Alexander Beach, Owner builds. **$130,000.**

Kan., Harper—DRIVE-IN THEATER—Carl Botkin, c/o Harper Theater, Harper, 300-car drive-in motion picture theatre, separate contracts, Approx. **$60,000.**

Kan., Lyons—SWIMMING POOL—City, at office F. Janssen, city clk., City Hall, swimming pool to Southern Constr. Co., Commerce Exchange Bldg., Oklahoma City, Okla., **$74,-563.** Bids 10/19. CD 9/28.

La., Bogalusa—DRIVE-IN THEATRE—Nick Lamantia & M. A. Berenson, drive-in theatre, Owner builds. **$50,000.**

La., Ruston—DRIVE-IN THEATRE—W. M. Butterfield, Ruston, drive-in theatre, owner builds. Approx. **$50,000.**

N. Y., Great Kills—PARK—Comr. Parks, at office Dpt. Parks, Arsenal Bldg., Central Park, 64 St. and 5 Ave., New York, Zone 21, Mus., Contr. No. R-16-249, at Great Kills Park, to Certified Constr. Corp., 485 Mosel Ave., Staten Island, Zone 4, **$250,150;** grading beach with hydraulic fill and construct riprap flume at northerly end, Contr. No. R-16-349, to Arundel Corp., foot of Fulton St., Brooklyn, **$138,380.** Bids 10/7. CD 9/29.

Oklahoma—RURAL DISTRIBUTION LINES—Alfalfa Electric Co-operative, Cherokee, 277 mi. rural distr. lines, Alfalfa Co., to B. B. Winsett & Co., Box 4137, Memphis, Tenn., **$462,106.** Est. $475,000. Awarded 10/14. C. H. Guernsey & Co., 1414 N. Robinson St., Zone 3, engrs. CD 1/14.

♦Oklahoma—GENERATORS—U. S. Eng., P. O. Box No. 61, Tulsa, two 17,895 k.v. generators for Tenkiller Dam, Illinois River, CIVENG-34-066-50-8, to Elliott Co., Ridgeway, Pa., **$864,719.** Est. $850,000. Bids 9/8, awarded 10/11. CD 9/20, under LB.

Texas—PIPELINE—Continental Pipe Line Co., 1000 S. Pine St., Ponca City, Okla., 25 mi. 8 in. crude oil pipeline Archer-Wichita Falls, Archer and Wichita Counties. Owner builds. Approx. **$150,000.** CD 10/7.

Texas—LINES, CABLE—Southwestern Bell Telephone Co., 308 S. Akard St., Dallas, new lines and cables, at Olney. Purchase and Hire. Approx. **$250,000.** CD 8/9.

Tex., Dallas—GAS LINES—Terminal Bldg. Corp., c/o 2nd unit Santa Fe Bldg., natural gas lines, to Williams & Wagner Constr. Co., 8515 Preston Rd., **$55,000.** CD 10/13.

Que., Vercheres—HARBOR REPAIRS, etc.—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., harbor repairs, imprvs. to Cambbell Bros. & Thompson, Ltd., 65 Bais Franc Rd., Montreal, Approx. **$76,388.**

PROPOSED PROJECTS

WATER SUPPLY

Calif., Cloverdale—City, City Hall, voted **$125,000** bonds water sys. imprvs., Richard M. Starns, 2954 University Ave., Berkeley, consult. engr.

Calif., El Cajon—La Mesa, Lemon Grove, Spring Valley Irrigation Dist., defeated **$500,-000** bonds six transmission mains. CD 9/30.

Colo., Boulder—City, City Hall, plans by R. J. Tipton & Assoc., Inc., archt. and consult. engr., 602 Insurance Bldg., Denver, water supply sys. imprvs. **$500,000.**

Kan., Hugoton—City, **$168,000** bond election Nov. 7, WW exten. Ediger Eng. Co., Admin. Bldg., Municipal Airport, Wichita, engr.

♦N. M., Albuquerque—U. S. Eng., Box 1538, Albuquerque two 1 m.g. and one 500,000 gal. steel surface water reservoir, water supply sys., Stage VI, Sandia Base. Serial No. Eng 29-005-50-19. **$200,000.**

Ont., French River—Government of Canada, Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., water control imprvs. **$182,000.** J. M. Wilson, G. P. O. Bldg., Toronto, engr.

Que., Ste. Therese—Municipality, new extens. **$160,000.** S. Ouimet, 750 St. Gabriel St., Montreal, engr.

SEWERS, WASTE DISPOSAL

Calif., Long Beach—Los Angeles Sanitation Dist. 3, 1206 S. Maple Ave., Los Angeles, 11 St. Interceptor Sewer Line, Spring St. and Clark Ave. to 11 St. and Loma Ave., **$300,000.** A. M. Rawn, city engr.

Calif., San Marino—City, voted **$190,000** bonds, storm drain. H. A. Barnett, Pasadena, engr.

Conn., Simsbury—Town Planning Comn., Simsbury, sewerage sys. incl. sanitary sewers, disposal facilities, etc. **$800,000.** Buck & Buck, 650 Main St., Hartford, consult. engrs.

Okla., Tulsa—Mingo Valley Sewer Dist., Tulsa, voted bonds, sanitary sewers. **$746,500.** W. F. Shaw, Tuloma Bldg., consult. engr. CD 8/16.

●**Pa., Altoona**—Municipal Auth. of Altoona, City Hall, Altoona, 2 sewage disposal plants, one 6½ m. g. and other 5½ m. g. daily capacity, sludge digestion, aeration, chlorine treater, East Altoona and Allegheny Twp., near here. **$1,300,000.** Albright & Friel, 1520 Locust St., Phila., consult. engrs. CD 4/26/46.

Pa., Mt. Jewett—Boro of Mt. Jewett, sewage treatment plant, incl. gravity sys., 2 tanks, 1 filter, sludge beds, piping, **$120,000.** Sidney Collins, R. D. 2, Lewisburg, engrs. CD 2/1/45.

●**R. I. South Kingstown**—Town, Charles B. Clark, chn. Sewer Bd., 30 Lake St., Wakefield, sewerage sys., sewers and sewage disposal plant, treatment facilities. **$3,500,000.** Jenks & Ballou, 2600 Industrial Trust Bldg., Providence, consult. engrs. CD 1/1/47.

●**Tenn., Chattanooga**—City, City Hall, voted bonds, sanitary sewer imprvs. **$4,350,000.** CD 8/8.

●**Tex., Beaumont**—City, City Hall, disposal or treatment plants, Plant 1, in vicinity of Martin School, **$1,250,000;** Plant 2, along Hillebrandt Bayou near former city abattoir, **$1,000,000;** Plant 3, location not yet determined, **$750,000.** George Schaumberg, American Natl. Bank Bldg., consult. engr.

BRIDGES

●**Kentucky**—State Hy. Dpt., Frankfort.

Union Co.—toll bridge over Ohio River, from Morganfield, Ky. to Shawneetown, Ill., **$2,-500,000.** Sverdrup & Parcel, Syndicate Trust Bldg., St. Louis, 1, Mo., consult. engrs.

Wash., Derringer—Pierce Co., County Courthouse, Tacoma, bridge over Stuck River at Stewart, near here. **$100,000.**

STREETS AND ROADS

●**O., Toledo**—City, 1950 paving program, resurf. 28 residential streets; construct 31 new pavements; 28 alley imprvs., 17 widening projects. **$1,950,000.** Burton R. MacRitchie, Safety Bldg., city eng. comr. CD 10/14/48.

●**Tex., Kaufman**—Kaufman Co., Courthouse, bond election Nov. 8, farm-to-market roads, 25 mi. Precinct 1, **$250,000;** 36 mi. Precinct 2, **$360,000;** 38 mi. Precinct 3, **$380,000;** 26 mi. Precinct 4, **$260,000.**

●**Virginia**—City of Richmond and State of Virginia, Richmond.

Henrico and Chesterfield Counties—express highway through the city of Richmond. **$30,-000,000.** Ladislas Sego & Assoc., 35 E. 7 St., Cincinnati, O., consult. engrs.

Washington—State Hy. Dpt., W. A. Bugge, dir., Olympia.

King Co.—c. conc., surf. constr. rein.-con. snowshed on 0.614 mi. P. S. H. 2, Airplane Curve Snowshed.

Kittitas Co.—c. conc. surf., rein.-con. snowshed 0.455 mi. P. S. H. 2, Lake Keechelus Snowshed.

EARTHWORK, WATERWAYS

♦Washington—U. S. Eng., 4735 E. Marginal Way, Seattle, Zone 4, rehabilitation floodway, Salmon Creek, Okanogan, Serial No. CIVENG 45-108-50-29.

Ont., Napanee—Napanee Valley Conservation Auth., A. L. Dafoe, secy. and Dpt. Planning & Development, dam and reservoir to increase summer flow of river. Approx. **$200,000.** Kilborn Eng. Co. Ltd., 137 Wellington S. W., Toronto, engr.

AIRPORTS AND AIRBASES

Del., Wilmington — AIRPORT IMPRVS. — New Castle County Levy Court, Municipal Bldg., Wilmington, terminal administration bldg., Tri County Airport, **$100,000.**

La., Lake Charles — ADMINISTRATION BUILDING — Calcasieu Parish Police Jury, c/o Dunn & Quinn, archts., Lake Charles, administration bldg., Lake Charles Airport, **$100,000.** CD 12/29/44.

●**♦Mass., Westover Field (Sta. Chicopee Falls)**—HOUSING—U. S. A. Army Air Base, Westover Field, Chicopee Falls, 750 unit housing, **$7,000,000.** CD 7/28, under Mass., Chicopee.

N. J., Newark—TERMINAL—Port of New York Auth., 111 8 Ave., New York, 11, N. Y., plans by Lorimer & Rose, 254 W. 54 St., New York, 19, N. Y., passenger terminal expansion at Newark Airport, **$500,000.**

LATIN AMERICA

Mexico—National Railways of Mexico, Bolivar 19, Mexico, D. F., plans passenger-freight depots in Valley of Mexico. **$45,000,000.**

Mexico, Mexico — Camex, S. A., P. de la Reforma, 1-651, Mexico, D. F., plans reinforced cables factory. **$250,000.**

Mexico, Mexico City—Rufino F. Ibarguen, Calzada de la Piedad, 379-b, Mexico, D. F., plans prepared milk and derivatives factory. **$250,000.**

Mexico, Monterrey—Petroleos Mexicanos, Juarez, 104, Mexico, D. F., Mexico, plans oil refinery. **$20,000,000.**

Peru, Callao—Republic of Peru, Lima, plans cold storage plant. **2,000,000** Soles, Ministry of Works, Lima, engr.

PUBLIC BUILDINGS

●**Ark., Hot Springs** — AUDITORIUM—City, City Hall, city auditorium, **$3,000,000.**

Calif., Bellflower — SCHOOL—Bellflower Elementary School Dist., voted **$250,000** bonds, school buildings.

Calif., Burbank—HIGH SCHOOL—Burbank Unified School Dist., plans by Austin, Field & Fry, 2311 W. 3 St., Los Angeles, John Muir Junior High School, admin. bldg., auditorium physical education bldg., library and cafeteria, **$250,000.**

●**Calif., Compton**—SCHOOLS—Compton City School Dist., Compton, plans by H. L. Gogerty, 3123 W. 8 St., Los Angeles school, 154 St. and Central Ave.; school, Locust and McMillan Sts.; school, McKinley and 139 Sts.; school, El Segundo and Compton Blvds., **$250,000** each. CD 12/13/45.

Calif., El Monte — SCHOOLS—El Monte Elementary School Dist., voted **$381,000** bonds, school buildings. CD 8/12.

Calif., Hayward—HOSPITAL—Eden Twp. Hospital Dist., Hayward, plans by Douglas D. Stone & Lou B. Mulloy, 619 California St., San Francisco, 118 bed hospital, Approx. **$500,000.** CD 6/21/48.

Calif., Long Beach—SCHOOL, etc.—City School Dist., Long Beach, plans by Warren A. Dedrick, 132 W. Ocean Blvd., Alice M. Birney School, 70x187 ft. library and admin. bldg.; 96x121 ft. cafeteria and classrooms; 70x134 ft. classroom and kindergarten **$250,000.** J. H. Davies, 730 E. 3 St., consult. engr. CD 11/18/48.

Calif., Manhattan Beach—SCHOOL—Manhattan Beach Elementary School Dist., voted **$100,000** bonds, school. CD 9/16.

●**Calif., Redondo Beach** — SCHOOL—City School Dist., voted **$1,030,000** bonds, school buildings. CD 9/12/45.

Calif., Richmond — HOSPITAL — West Contra Costa Hospital Dist., Richmond, plans by Douglas D. Stone & Lou B. Mulloy, 619 California St., San Francisco, 100 bed hospital, Approx. **$500,000.** CD 5/11/48.

●**Conn., Bridgeport** — HOUSING — Bridgeport Housing Auth., Anthony D. Ciresi, chn., City Hall, plans by Harry G. Lindsay, 211 State St., 11 brick houses, incl. 26 units, Lexington Ave., **$2,000,000;** 21 brick houses, incl. 504 units, Burr Court, Black Rock section, **$4,000,000-$5,000,000.** CD 10/17/47.

●**Conn., Danbury**—COLLEGE BUILDINGS—State, Raymond Thatcher, comptroller, State Capitol, Hartford, plans by Philip Nichols Sunderland, 81 West St., brick, steel, concrete classroom and gymnasium, **$1,000,000,** both at Danbury Teachers College. CD 1/13.

●**Conn., Deep River** — SCHOOL — Regional School Bd. (Deep River, Essex, Chester and Haddam, etc.) plans by Ernest A. Sibley & Assoc., 7 S. Main St., West Hartford, brick steel Regional High School. **$1,000,000.** CD 10/17.

●**Conn., Hartford**—HOUSING—City of Hartford Housing Auth., 846 Asylum Ave., plans by Kane & Fairchild, 49 Pearl St., 3 story bldgs., 204 family units brick, Brookfield St., **$2,000,000.** CD 9/13.

Conn., Meriden — SCHOOL — City, John D Shaw, chn., School Bldg. Comn., Meriden, plans by Keith Sellers, Heine, 71 Oxford St., Hartford, 1 story, brick, concrete school, Parker Ave. **$375,000.** CD 10/2/45.

Conn., Middletown — HOSPITAL UNITS — State, Raymond S. Thatcher, comptroller, State Capitol, Hartford, plans by Sebastian J. Passanesi, 164 Court St., brick, steel occupational therapy unit, **$300,000**; plans by Russell F. Hills, 173 Barker St., Hartford, brick apartment for institution personnel, **$350,000**, both at Connecticut State Hospital. CD 2/7.

●**Conn., Norwich** — HOSPIAL BUILDINGS — State, Raymond S. Thatcher, comptroller, State Capitol, Hartford, brick, steel, concrete power plant, **$1,625,000**, Fletcher Thompson, Inc., 211 State St., Bridgeport, consult. engr.; plans by Creighton & McGuire, 140 State St., New London, 1 story, brick, concrete laundry, **$640,000**, both at Norwich State Hospital. CD 2/7.

Conn., Wallingford — SCHOOL — Town of Wallingford, School Bd., Town Hall, plans by Carl J. Malfeldt Assoc., 36 Pearl St., Hartford, 2 story, bsmnt., brick, steel school, N. Main St., **$300,000**. CD 4/24/47.

Del., Millsboro — SCHOOL — Millsboro School Dist., Millsboro, school, **$300,000**.

Ill., McHenry—SCHOOL—School Distr. 15, E. E. Freund, pres., City Hall, plans by R. A. Orput & Assoc., 216 S. Main St., Rockford, 1 story, bsmnt., 150x180 ft., concrete, brick school, **$250,000**. Belin Eng. Co., 501 15 St., Moline, engr.

Ill., Monsanto (East St. Louis, P. O.)—VILLAGE HALL—Village Bd. Trustees, Leo Sauget, pres., 2902 Monsanto Ave., 2 story, bsmnt. village hall, Lower Cahokia Rd. and Midwest Ave. **$300,000** bond election soon. J. W. Goldenberg & Assoc., Metropolitan Bldg., consult. engrs.

●**Ill., Springfield**—SCHOOLS—Bd. Educ., 200 E. Adams St., bond election Nov. 15, high school, **$2,270,000**; 4 grade schools, Northeast **$370,000**, Southeast **$370,000**, South **$455,000**, Southwest **$355,000**; addn. to Staley school **$325,000**, and Lanphier High School, **$560,000**. CD 9/20.

Ia., Iowa City — HOSPITAL—State Bd. Educ., 629 3 St., Des Moines, plans by Charles Altfillish, Decorah, hospital unit, University of Iowa, **$750,000**.

Kan., Ottawa—SCHOOLS—Bd. Educ. plans by Jos. Radotinsky, 1401 Fairfax Trafficway, Kansas City, Kan., 2 schools, **$575,000** bond election Oct. 25. CD 8/25.

Md., Annapolis—HOSPITAL—City, Municipal Bldg., Franklin St., plans by James R. Edmunds, Jr., 103 W. Hamilton St., Baltimore, 3 story, bsmnt. brick Emergency Hospital addn., Franklin St. **$500,000**. James Posey, 10 E. Pleasant St., Baltimore, mech. engr. Alexander E. Forrest, 518 Cathedral St., Baltimore, structural engr.

●**Md., Baltimore**—INFIRMARY—Mayor & City Council, City Hall, plans by Lucius R. White, Jr., 10 W. Chase St., 5 sty., brick, concrete, steel infirmary, **$3,600,000**; plans by Palmer, Fisher, Williams & Nes, 1020 St. Paul St., 4 story, concrete, steel, concrete block tuberculosis hospital, **$2,471,000**, both Cit y Hospitals, Eastern Ave. R. E. L. Williams, 410 Municipal Bldg., bldg. constr. engr. CD 1/20.

Md., Glenburnie — SCHOOL — Comrs. Anne Arundel Co., Green St., Annapolis, plans by Harder & Dressel, 5 Baltimore-Annapolis Rd., 1 and 2 story, concrete, brick, stone, cinder block, steel, school. Approx. **$280,000**.

†**Mass., Cambridge**—COMBUSTION TEST—Constr. Officer, 495 Summer St., Boston, combustion test, facilities, Mass. Institute of Technology, for Navy Dpt. **$680,000**.

Mass., Holyoke—NURSES HOME —Commonwealth of Mass., Trustee Soldiers Home, Paul Martel, secy., brick, concrete nurses home, supt's. cottage, Cherry Hill, **$250,000**.

●**Mass., Revere**—HOUSING—City of Revere Housing Auth., Police Station, Pleasant St., plans by Parker J. Brown, 18 Tremont St., Boston, nine 2 family and 26 four family 125 unit housing, **$1,350,000**.

Mass., Wenham—SCHOOL—Town of Wenham, Bd. Selectmen, Town Hall, plans by Emery-Smith Assoc., 92 State St., Boston, brick, steel Elementary and Junior High School, **$250,000**.

Neb., Lincoln — AUDITORIUM—City, City Hall, plans by Fritz Craig, 724 First Natl. Bank Bldg., Walter Wilson, 225 Stuart Bldg., E. G. Schaumberg, 614 Federal Security Bldg., and Bruce Hazen, 305 Stuart Bldg., city auditorium, **$2,500,000**. CD 3/17.

Neb., Lincoln—MEAT LABORATORY—University of Nebraska, 12 and R. Sts., plans by Meginnis & Schaumberg, 614 Federal Security Bldg., meat laboratory bldg. **$250,000**. CD 9/30.

●**N. J., Trenton**—HOUSING—Trenton Housing Auth., 875 New Willow St., housing **$4,000,000**.

●**N. J., Union City**—HOUSING—Housing Authority of Union City, City Hall, 400 unit housing, **$3,000,000**.

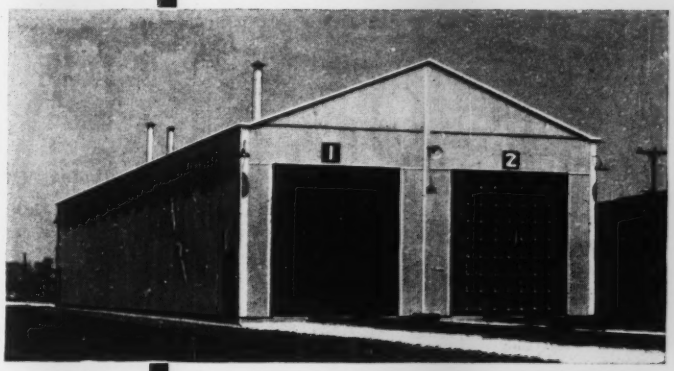
O., Attica—SCHOOLS—Bd. Educ., Attica, $345,000 bond election Nov. 8, present school addn. **$200,000**; primary school **$245,000**. CD 9/23.

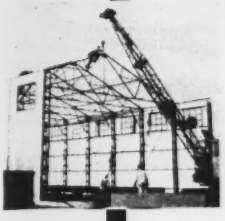
O., Bay Village—SCHOOL—Bay Village Bd. Educ., 502 Cahoon Rd., **$610,000** bond election Nov. 8, school construction.

O., Cincinnati—GYMNASIUM, etc.—Bd. Educ., Anderson Twp. Rural School, RFD State Route 125, bond election in November, 1 story, brick, concrete bsmnt, gymnasium and cafeteria bldg., **$375,000**.

O., Cincinnati—RECEIVING HOSPITAL—State Dpt. Pub. Welfare, State Office Bldg., S. Front St., Columbus. Receiving Hospital, Hamilton Co., near here. **$900,000**. H. S. Allen, c/o owner, archt.

Need permanent, new buildings . . . quick?





● You can save yourself a lot of time, worry *and* money—with Stefco Standardized Prefabricated Steel Buildings!

Stefco Buildings are permanent—built to last—yet completely demountable. Easy to expand, adapt or move as needs require.

And they go up *fast!* Sidewall sections are factory assembled—with sash and doorways already in place. That means days saved in erection—labor costs cut!

Flexible, too—trusses come in clear spans up to 80'. Units combine to fit practically any requirements. Like parts are interchangeable.

Whatever your needs—large or small—investigate STEFCO. Send *now* for new descriptive brochure.

Write, wire, phone for details

STEFCO STEEL CO.

General Offices and Works: MICHIGAN CITY, IND., U. S. A., Phone 115

"GUNITE" CONCRETE
(Since 1915)

FOR • STEEL PLATE LINING • STEEL ENCASEMENT • BUILDING NEW WALLS • LINING WATER RESERVOIRS TUNNELS AND SEWERS • PLATE LINING OF STEEL STACKS, BUNKERS, DUCTS • REPAIR OF DISINTEGRATED CONCRETE AND MASONRY • CANAL, DITCH AND DRAIN LINING

GUNITE CONCRETE & CONST. CO.
1301 Woodswether Rd., Kansas City 6, Mo.

District Branch Offices

R. N. Turner, Dist. Mgr., 228 No. LaSalle St., Chicago 1, Ill.; B. H. Mueller, Dist. Mgr., 6625 Delmar Blvd., University City, (St. Louis), Mo.; Philip D. Barnard, Dist. Mgr., 2036 Addison, Houston 5, Tex.

Branch Offices: Denver, Dallas, New Orleans
See our catalog in Sweet's

DRILLING CONTRACTORS

DIAMOND AND SHOT CORE BORINGS—DRY SAMPLE BORINGS

Foundation Testing for Bridges, Dams and All Heavy Structures

Also

Manufacturers of Diamond and Shot Core Drills, Accessories and Equipment

SPRAGUE & HENWOOD, Inc.
Scranton, Pa. Dept. E, U. S. A.

STOW CONCRETE VIBRATORS

For a Better Job . . . and EASIER, LONGER USE

It's the flexible shaft that takes the beating . . . up to 9000 vibrations a minute. But in the STOW, you get the best flexible shafting known, built by the pioneer in flexible shaft manufacture and application. The unmatched STOW Flexible Shaft, coupled with a choice of power (gasoline) units and Vibrator Heads, gives you the concrete vibrator best for your work.

Every STOW Concrete Vibrator turns in better performance and stays on the job

Because

1 the Vibrator Head is RIGHT;

2 the Motor is RIGHT;

3 the Carryhandle is RIGHT; and

4 most of all, the FLEXIBLE SHAFT is RIGHT.

Write for complete folder on various types and equipment that aid you in meeting the strictest specifications in concrete work.

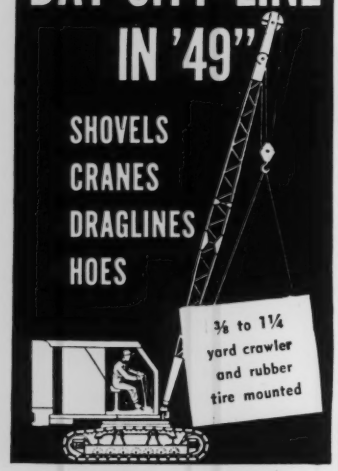
- 3 hp Vibrator for wide uses in harshest concrete. Variable speed.
- 1½ hp, general purpose.
- 1½ hp, direct driven. For use in light forms and shallow slabs

STOW Manufacturing Co., 19 Shear St., Binghamton, N.Y.

"See the

BAY CITY LINE IN '49"

SHOVELS
CRANES
DRAGLINES
HOES



⅜ to 1¼ yard crawler and rubber tire mounted

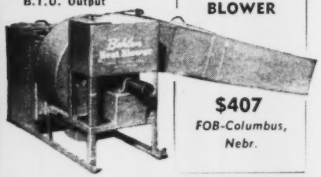
BAY CITY

BAY CITY SHOVELS, INC., BAY CITY, MICH.

NEW! Heating Unit for Winter Jobs

- Ideal for Concrete Work
- Quickly Thaws Out Materials
- Over One Million B.T.U. Output

BEHLEN HEAT BLOWER



$407 FOB-Columbus, Nebr.

A sturdy, dependable heating plant. Has many construction uses. Recommended for concrete work in low temperatures. Warms aggregate at batching plant; prevents freezing concrete while setting. Just the thing for drying and curing plaster or paint and other such jobs. Preheats machinery. Burns 1 to 9 gals. distillate or kerosene an hour; furnishes up to 1,100,000 B.T.U.'s direct heat per hour. Built-in fan delivers up to 7,000 CFM at ½ inch water pressure or 5,000 CFM at 5 inches pressure up to 250° F output. Gasoline or electric motor furnished if desired. Adjustable outlet pipe is removable for adapting to fit job. Mounted on skids. Used on Federal and private construction. Almost 3,000 in use on farms dehydrating corn. Beat cold weather delays . . . write, wire for full information . . .

BEHLEN MANUFACTURING COMPANY
DEPT. 3 COLUMBUS, NEBR.

O., Copley—SCHOOL—Bd. Educ., Copley Local School Dist., Copley, **$312,000** bond election Nov. 8, school addns., imprvs.

O., Dayton—SCHOOL—Van Buren Twp. Local School Dist., Dayton, **$850,000** bond election Nov. 8, school bldgs.

O., Maple Heights — SCHOOL — Maple Heights Bd. Educ., Broadway and Lee Rd., bond election Nov. 8, school. **$800,000.** CD 8/8.

O., Norton (Br. Akron)—HIGH SCHOOL—Bd. Educ., Norton Local School Dist., Akron, **$280,000** bond election Nov. 8, high school. CD 10/9/46.

O., Rocky River—SCHOOL—Rocky River Bd. Educ., Mr. Davis, supt., 20510 Detroit Rd., bond election Nov. 8, school construction. **$750,000.** Fulton, Kirinsky & Delamotte, 6014 Euclid Ave., Cleveland, archts.

O., Stow—SCHOOLS—Bd. Educ., Stow Local School Dist., Stow, **$165,000** bond election Nov. 8, school building program, inc. grade school annex, high school addn. and imprvs. to both present bldgs.

O., Twinsburg—SCHOOL, etc—Bd. Educ., Twinsburg Local School Dist., Twinsburg, **$240,000** bond election Nov. 8, school and imprv. high school.

O., Xenia—SCHOOL, etc.—Bd. Educ., Hath Twp. Local School Dist., Xenia, **$860,000** bond election Nov. 8, school, field house and stadium, near here.

Pa., Large — JUNIOR HIGH SCHOOL — School Dist. of Jefferson Twp., Roosevelt School, Large, plans by Joseph W. Hoover, 316 Penn Ave., Pittsburgh, 2 story, bsmnt., brick and tile Junior High School, concrete slab floor, Jefferson Twp., near here. **$700,000.** CD 2/27/47.

●**Pa., Phila.**—HOUSING—Phila. Redevelopment Auth., 21 St. and Parkway, plans by Paul M. Hesser, Jr., 140 W. Phila., Elena St., and Weston Bates & Hillard, assoc. archts., R. D. 1, Doyleston, 177 apartments, Fairmount Ave., etc. (slum clearance). **$1,500,000.**

Pa., Turtle Creek—SCHOOL—School Dist. of Patton Twp., R. D. 2, Turtle Creek and State Public School Auth., Harrisburg, plans by C. C. & C. E. Compton, 413 Thompson St., Donora, 1 story, bsmnt, brick Junior High School, Patton Twp. **$250,000.**

Pa., Washington—CITY HALL—City, City Hall, plans by C. Garey Dickson, 22 Main St., 2 story, bsmnt, stone, tile, steel city hall. **$500,000.** Bond election soon.

●**Tenn., Nashville**—FARMERS MARKET—City, c/o Thomas L. Cummings, mayor, City Hall, farmers market. **$1,000,000.**

Tex., Austin — SERVICE—University of Texas, c/o Bd. Regents, Austin, plans by Giesecke, Kuehne & Brooks, 121 E. 8 St., 4 story, 168x128 ft. service bldg. **$470,000.** Wilson & Cottingham, Littlefield Bldg., Dallas, consult. engrs. R. L. White, University Architectural Bldg., Austin, engr. CD 3/4.

●**Tex., Brownsville** — HOUSING—Brownsville Housing Auth., Brownsville, 250 low rental housing units, **$1,875,000.** Boese & Harkrider, 423 N. Main St., Ft. Worth, archts. and consult. engrs. CD 9/15.

Tex., Eldorado — SCHOOLS — Schleicher County Independent School Dist., Eldorado, plans by David S. Castle Co., 1082½ N. 1 St., Abilene, masonry high and elementary school, remodeling, repairing elementary school. **$350,000.**

Tex., Garland — HIGH SCHOOL—Garland Independent School Dist., Garland, voted bonds, masonry Junior High School. **$310,000.** CD 10/7.

Tex., McKinney — HOUSING—McKinney Housing Auth., McKinney, plans by Boese & Harkrider, archt. and consult. engr., 403 N. Main St., Ft. Worth, 100 low-rental housing unit, **$750,000.** CD 7/15.

Tex., Mercedes — HOUSING — Mercedes Housing Auth., Mercedes, plans by Boese & Harkrider, archts. and consult. engrs., 423 N. Main St. Ft. Worth, 100 low rental housing units. **$750,000.** CD 12/13/45.

Tex., San Antonio—JAIL, etc.—Bexar Co., Charles Anderson, judge, Courthouse rescinded bond election for Nov. 8, remodeling, reconditioning, masonry county jail, **$283,325;** home for aged, and girls and boys housing, **$259,925;** remodeling, reconditioning courthouse, **$319,952.** Malcom Simons, Aztec Bldg., and Carlton Adams Jr., Transit Tower, archts. CD 10/5.

Tex., San Benito—HOUSING—San Benito Housing Auth., San Benito plans by Boese & Harkrider, archt. and consult. engr., 403 N. Main St., Ft. Worth, 100 low rental housing units, **$750,000.** CD 12/16/45.

Tex., San Ysidro (Melmita P.O.)—SCHOOLS—San Ysidro Independent School Dist., Melmita, plans by Cooke, Bowman & York, 1229 W. Harrison St., Harlingen, school, **$250,000;** high school **$250,000.**

Tex., Taylor—HOUSING—Taylor Housing Auth., c/o W. H. McGinnis secy., 100 unit housing. **$875,000.**

●**Tex., Temple**—HOUSING—Temple Housing Auth., Temple, 125 federal housing units. **$1,093,750.**

Tex., Texas City—HOUSING—Texas City Housing Auth., Texas City, 1st year, 40 low rental housing units, **$350,000;** 2nd year, 40 low rental housing units, **$350,000.** CD 12/13/45.

●**Tex., Waco**—HIGH SCHOOL—Waco Independent School Dist., Pub. School Bd., voted bonds, high school, **$1,450,000;** elementary school, **$400,000;** Junior-Senior High School,

north side, **$800,000**; Junior-Senior High School, south side, **$800,000**; grade school, **$550,000**. CD 10/7.

●**Tex., Wichita Falls**—DWELLING UNITS—Wichita Falls Housing Auth., Wichita Falls, plans by Boese & Harkrider, archts. and consult. engrs., 403 N. Main St., Ft. Worth, 500 rental dwelling units, **$3,750,000**. CD 3/4.

Wash., Auburn—SHOP—School Bd., Auburn, voted **$150,000** bonds shop.

●**Wis., Eau Claire**—SCHOOL—Bd. Regents of Normal Schools, Madison, plans by Roger C. Kirchhoff, state archt., Madison, school bldg. at State Teachers College, **$1,300,000**. CD 12/2/43.

Wis., Whitewater—LIBRARY, etc.— Bd. Regents of Normal Schools, Madison, plans by Roger C. Kirchhoff, state archt., Madison, library and administration bldg. at State Teachers College, **$600,000**. CD 12/2/43.

W. Va., Morgantown—LIBRARY—West Virginia University, Morgantown, plans by Tucker & Silling, Masonic Bldg., Charleston, 2 story, bsmnt., steel, concrete, brick stone library, **$500,000**.

W. Va., Shepherdstown—PHYSICAL EDUCATION—W. Virginia State Bd. Educ., Charleston, plans by Harry R. Nay, 303 Fidelity Bldg., Wheeling, physical educ. bldg. **$500,000**.

●**Wis., Wauwatosa** — DETENTION HOME — Milwaukee Co., Courthouse, Milwaukee, plans by John Messmer, c/o owner, juvenile detention home bldgs., near here. **$1,751,987.**

●**Ont., Hamilton**—HOSPITAL—J. F. Berry, city clk., plans by J. D. Kyles, 26 James St. S., convalescent and chronic general hospital, Approx. **$2,100,000.** CD 7/30/43.

Que., Noranda—SCHOOL—School Comn., F. Hebert, secy., Noranda, 20 classroom school. Approx. **$400,000.**

Que., Rouyn—SCHOOL—School Comn., G. Melancon, secy., 12 classroom school, Rouyn South. Approx. **$250,000**.

Que., Sayabec — WEATHER · STATION — Secy., c/o Dpt. Transport, Hunter Bldg., Ottawa, Ont., weather station about 15 mi. from here. Approx. **$500,000.**

Que., Sherbrooke—POWER PLANT—City, A. Deslauriers, city clk., power plant imprvs., Bromptonville to provide addnl. 10,000 hp. Approx. **$850,000.** J. A. Cote, c/o owner, engr. CD 10/22/48.

COMMERCIAL BUILDINGS

Ark., Pine Bluff—OFFICE—Arkansas Power & Light Co., Simmons Natl. Bldg., Pine Bluff, office, Approx. **$500,000.**

Conn., Simsbury—HOUSING—Ensign Bickford Co., Main St., 43 houses, Straton Brook and Sand Mill Rds. **$450,000.**

Conn., Simsbury—HOUSING—Simsbury Development Co., George H. Stebbins, pres., plans by T. H. Desmond, Drake Hill Rd., Farmington, 40 acre plot, Firetown Rd., Plank Hill Rd. Sect. Approx. **$250,000.**

Conn., Thompsonville—HOUSING—J. & F. Home Imprvt. Co., Frank Jensen & J. T. Feertanti, Windsor, plans by Walter Fury, 1094 Enfield St., 50 frame houses, Colony Acres, Enfield St. **$400,000.**

●**Ga., Atlanta** — HOUSING — Dpt. of Army, Atlanta General Depot, U. S. Army, Atlanta, is accepting letters of intent to bid from responsible contractors on constructing and developing 125 privately-financed rental housing units on leased land at Atlanta General Depot. **$1,000,000.**

●**Ga., Atlanta**—APARTMENT—R. E. Doorugh & Assoc., c/o James C. Wise, archt., 305 Techwood Dr., 8 story apartment, **$1,750,000.**

Ill., Chicago — HOME for AGED — Church Home for Aged, 5445 S. Ingleside and 54 Place Sts., Zone 15, plans by Mundie Jensen & McClurg, 39 S. La Salle St., Zone 3, 4 story, 37,000 sq. ft. steel, concrete, brick, stone, granite Home for Aged addn. **$325,000.**

Ill., Chicago—APARTMENTS—J. M. Kogen, 2060 S. Vernon St., plans by A. J. Del Bianco, 4938 W. Irving Pk., Zone 41, 5 story, bsmnt., 47 unit rein.-con. brick apartment. **$400,000.**

Ill., Chicago — THEATRE — Kungsholm Restaurant, 100 E. Ontario St., Zone 11, plans by Lawrence Monberg, 2 N. Wacker Dr., Zone 6, steel, brick, rein.-con. stone puppet theatre, addn. to restaurant. **$250,000.**

Ill., Chicago—OFFICE — Merchandise Mart Bldg., 222 W. North Bank Dr., plans by Dittrich & Gibson, 8 S. Michigan St., Zone 3, office and loft space alterations, **$260,000.**

Ill., Chicago—APARTMENTS—Owner, c/o Shaw, Metz & Dolio, archts., 208 S. LaSalle St., Zone 4, 7 three story 78 unit brick, concrete apartments. **$380,000.**

Ill., Chicago—LAUNDRY, etc.—Provident Hospital & Training School, 426 E. 51 St., Zone 15, plans by Schmidt, Garden & Erickson, 104 S. Michigan St., Zone 3, 1 story laundry addn., addnl. story over boiler room and addnl. 6 story on main bldg. **$250,000.**

Ill., Elgin—CHURCH—Holy Trinity Lutheran Church, 33 N. Chapel Ave., plans by LeRoy W. Thompson, 355 Congdon Ave., 1 story steel, concrete, brick church addn. **$275,000.**

●**Ill., Evanston** — APARTMENTS — Owner, c/o Frank McNally & Assoc., archts., 105 W. Madison St., Chicago, Zone 3, 7 story, 28 unit steel, concrete, brick apartment. **$1,000,000.**

In., Vinton—HOSPITAL—Virginia Gay Hospital, Vinton, hospital, **$373,000.**

Me., Biddeford — HOSPITAL — Webber Hospital Assn., L. B. Lausier, chn. Hospital Comm., City Hall, plans by Kendall Taylor & Co., 211 Columbus Ave., Boston, 2 story, brick, steel hospital addn., Elm St. **$750,000.** R. D. Kimball Co., 6 Beacon St., Boston, engr. CD 5/13.

Mo., Carthage — HOSPITAL — McCune-Brooks Hospital, Carthage, plans by Hawkins & Easterly, McDaniel Bldg., Springfield, hospital. **$260,000.**

Mont., Helena—SCHOOL—St. Helena Cathedral, Helena, Cathedral High School. **$300,000.**

N. J., Lawrenceville—SCIENCE—Lawrenceville School, Lawrenceville, plans by Delano & Aldrich, 126 E. 38 St., New York, N. Y., science bldg. Approx. **$250,000.**

N. Y., Huntington Station — CHURCH — St. Hugh Roman Catholic Church, 61 First St., plans by Beatty & Berlenbach, 32 Court St., Brooklyn, Zone 2, church. **$250,000.**

O., Mayfield Heights — CLUB HOUSE, etc. Albert Welsberg, 550 Som Center Rd., club house and recreation center, incl. bowling alleys, swimming pool, etc. **$500,000.**

O., Moreland Hills and Solon—RESIDENCES—Moreland Hills Co., Jackson Rd., Moreland Hills Village, twenty-five 1 story, bsmnt., 1½ story, with or without bsmnt., stone, brick, some frame residences incl. grading, draining, paving and storm sewers. **$600,000.**

Pa., Butler — BUILDING — Young Women's Christian Assn., Cunningham St., plans by Howard & Murphy, 610 Butler Co. Natl. Bank Bldg., 2½ story, 75x180 ft., brick on tile backup, steel frame Y. W. C. A. Bldg., Cunningham St. **$250,000.** CD 12/17/45.

Pa., Canonsburg — HOSPITAL — Canonsburg General Hospital, Canonsburg, plans by Ingham, Boyd & Pratt, Empire Bldg., Pittsburgh, 4 story, bsmnt., concrete block, brick hospital addn. **$250,000.**

Pa., Greenville—LIBRARY, etc.—Thiel College, Greenville, plans by J. E. and A. L. Martsolf, 3 Ave., New Brighton, 3 story, brick, stone, steel library, **$250,000;** 2 story, bsmnt., brick, tile, steel mens dormitory, **$250,000.** CD 1/27/47.

Pa., McKeesport—APARTMENT—Versailles, Inc., c/o W. L. Buck, 517 Walnut St., plans by Philip Friedman, 1215 Negley St., Pittsburgh, 6 story, bsmnt., 100x108 ft. brick, concrete block apartment, 6-1 bdrm. suites, Versailles and Spring Sts. **$500,000.**

Pa., Mt. Lebanon (br. Pittsburgh)—APARTMENT—Trilli & Dunbar, 729 Washington Rd., Pittsburgh, plans by Tennyson & Van Wart, 666 Washington Rd., Pittsburgh, 3 story, bsmnt., 93x185 ft., concrete block, brick apartment. **$500,000.**

Pa., Pittsburgh — APARTMENT — 10 S. Negley Ave., Inc., c/o Elmer Lederer, Evergreen Rd., Allison Park, plans by Phillip Friedman, 121 S. Negley Ave., 6 story, brick apartment, 601 S. Negley Ave. **$250,000.**

Pa., Pittsburgh — APARTMENT — Forbes Craig Apartments, Inc., c/o Phillip Friedman, archt., 121 S. Negley Ave., 6 story, bsmnt., brick, block apartment, 4535 Forbes St. **$250,000.**

●**Tenn., Clarksville** — HOUSING — Guaranty Mortgage Co., c/o Woolwine & Harwood, archts., American Trust Bldg., Nashville, 600 housing units at Camp Campbell. Approx. **$2,000,000.**

●**Tenn., Murfreesboro** — RESIDENCES — J. W. Hudgins, owners agent, c/o Hart & McBryde, archts., Cotton States Bldg., Nashville, residential development. Approx. **$1,000,000.**

●**Tenn., Nashville**—HOMES—John W. Wilson, American National Bank Bldg., 124 homes. **$1,000,000.**

Tex., Dallas — SCHOOL—Ursuline Academy, 1330 St. Joseph St., plans by Smith & Mills, Mercantile Bank Bldg., brick, concrete school, concrete fdn., **$350,000;** masonry monastery, **$250,000.** Zumwalt & Vinther, Mercantile Bank Bldg., consult. engrs. CD 5/13.

Tex., Houston — APARTMENT — Homer Browne, Commerce Bldg., plans by Zimmerman & Bible, engrs. and archts., 500 Stuart Bldg., apartment units, rein.-con. fdn., air-conditioning, Hermann Dr. **$250,000.** Walter P. Moore, 4005 Montrose St., structural engr.

Tex., Houston — APARTMENT — Hou-Tex Constr. Co., 2128 W. Alabama St., apartment proj., area of Kirby and Danville Sts., **$275,000.**

Tex., San Antonio — HOUSING — Wallace Rogers & Sons, Travis Bldg., housing in areas of Shavana Park. **$375,000.**

Tex., Trinity — HOUSING — Trin-Tex Builders, Inc., Trinity, housing **$300,000.**

●**Va., Ashland**—BUILDINGS—Randolph-Macon College, Ashland, plans by Merrill C. Lee, 110 N. 7 St., Richmond, teaching and administration bldg.

Wash., Ellensburg — APARTMENT—Washington Mortgage & Insurance Co., c/o G. R. Sumpter, 1817 7 Ave. W., Seattle, plans by P. J. Rogers, 166 Roy St., Seattle, 2 story, 101x151 ft., frame apartment, 1 Ave. and Walnut St. **$250,000.**

Ont., Hamilton—RECREATION CENTER—McMaster University, Hamilton, plans by Bruce Brown & Brisley, 12 E. Bloor St., Toronto, Alumni Memorial Recreation Center, **$300,000.** CD 11/15/56.

Ont., Westboro — HOUSES—R. A. L. Bruce, c/o Bruce Coal Co. Ltd., Hardy Arcade, Sparks St., Ottawa, 250 to 300 low cost houses, Carling Ave., Approx. **$800,000.**

INDUSTRIAL BUILDINGS

Calif., East Los Angeles—SHOP, etc.—Southern California Edison Co., 601 W. 5 St., Los Angeles, shop, warehouse, office 6233 E. Whittier Bldg. **$100,000.**

Conn., Hartford — GARAGE — Anthony and Frank Zazzaro, c/o A. John Machei, 37 Farmington Ave., 3 story, open ramp, rein.-con. parking garage, street level and 2 upper levels, 110x225 ft., Trumbull and Allyn Sts. **$270,000.**

Conn., South Windsor—WAREHOUSE—H. C. Brewer, High St., East Hartford, plans completed by Arnold Lawrence, 19 Bliss St., Manchester, 1 story, 100x162 ft., brick, steel tobacco warehouse, Governors Hy. and Rt. 5, **$100,000.**

Ill., Vandalia—FACTORY—Items, Inc., S. S. Rosenberg, pres., Peoria, 1 story, concrete block dress factory, **$100,000.**

●**Ind., Hammond**—PLANT—Lever Bros. Co., 50 Memorial Dr., Cambridge, Mass., 4 story margarine plant addn., to existing soap and edible products plant, Indianapolis Blvd. and Homan Ave. **$2,000,000.**

Mo., St. Louis — WAREHOUSE, etc. — Schwander Appliance Co., Julian Schwander, pres., 3920 Olive St., Zone 8, 1 story warehouse and office bldg., Duncan and Taylor Aves. **$300,000.**

Okla., Ada—PLANT—Rock Products Corp., Adam, rock wool mfg. plant. **$100,000.** Wm. Ryder, Ada, engr.

Ore., Portland—PLANT—Union Pacific R. R., W. C. Perkins, ch. engr., 1416 Dodge St., Omaha, Neb., steel, metal, concrete type automobile assembly plant. **$350,000.**

●**Pa., Phila.**—PLANT—Edward G. Budd Mfg. Co., 245 Hunting Park Ave., plans completed casting plant, Red Lion and Verree Rds. **$1,500,000.** Theodore Simondinger, owners staff member in charge.

Pa., Pittsburgh—PLANT—American Textile Co., 900 Pennsylvania Ave., plans by C. A. Lake, 203 Highland Terrace, Sharpsburg, converting 3 story, 100x365 ft. locomotive plant to textile plant, 49 and 50 Sts., **$250,000.**

Tex., Houston — INDUSTRIAL — Hou-Tex Constr. Co., 2128 W. Alabama St., masonry industrial bldg., area of Kirby and Danville Sts. **$100,000.**

●**Va., Richmond**—OIL TERMINAL—Standard Oil Co., 3701 W. Broad St., oil terminal on deep side James River. **$1,000,000.**

Ont., Chatham—BREWERY—Hope & Anchor Breweries, Ltd., Chatham, brewery, **$100,000.**

Ont., Oshawa—PLANT—General Motors of Canada Ltd., 7 William St., plant addn. **$300,000.**

Ont., Toronto—PLANT—Consumers Gas Co., 19 Toronto St., auxiliary coke and gas plant, Approx. **$300,000.** CD 3/30.

UNCLASSIFIED

●**Louisiana, Arkansas and Illinois**—GAS PIPELINE—Mississippi River Fuel Corp., William G. Marbury, pres., 407 N. 8 St., St. Louis 1, Mo., project abandoned, 654 mi. 20 in. natural gas pipeline between Perryville, La., to Joliet, or Geneseo, Ill., **$89,902,500-$92,000,000.** CD 1/4.

Minnesota—RURAL DISTRIBUTION LINES—Clearwater-Polk Electric Co-operative, Bagley, about 141 mi. rural distr. lines, Clearwater and Polk Counties, Proj. Minnesota 1016 Clearwater. **$150,000.** C. J. Hastad, Halstad, consult. engr.

Minnesota—RURAL DISTRIBUTION LINES—Clearwater-Polk Electric Co-operative, Inc., Bagley, 141 mi. rural distr. lines and system imprvs., Clearwater Co. **$270,000.**

Missouri—RURAL DISTRIBUTION LINES—Howard Electric Co-operative, Fayette, 100 mi. rural distr. lines and system imprvs., Howard Co. **$235,000.**

Mo., Cape Girardeau—SWIMMING POOL, etc.—City, City Hall, bond election Dec. 6, swimming pool and bathroom. **$200,000.** CD 11/28/45.

Montana—RURAL DISTRIBUTION LINES—Lincoln Electric Co-operative, Inc., Eureka 156 mi. rural distr. lines, Lincoln Co., **$415,000**

Montana—RURAL DISTRIBUTION LINES—Valley County Electric Co-operative, Inc., Glasgow, 97 mi. rural distr. lines, Glasgow Co., **$165,000.**

Neb., North Platte — SWIMMING POOL — City, voted **$74,000** bonds, swimming pool. **$135,000.** CD 8/25.

●**Ohio**—POWER LINE—American Gas & Electric Co., 30 Church St., New York, N. Y., high voltage power line, carrying between 300,000 and 360,000 volts, from Ohio River near Pomeroy to Columbus, area, with two branches from there, one to Lima and the other to Indiana border, aluminum or copper conductors will be used. **$5,000,000.**

Oklahoma—RURAL DISTRIBUTION LINES—Tri County Electric Co-operative, Inc., Hooker, sys. imprvs. and completing previously approved constr., Texas Co. **$250,000.**

Tennessee—RURAL DISTRIBUTION LINES—Upper Cumberland Electric Membership Corp., Carthage, 50 mi. rural distr. lines and sys. imprvs., Jackson Co. **$325,000.** CD 3/1/48.

●**Texas and Louisiana**—GAS LINE—Tennessee Gas Transmission Co., Commerce Bldg., Houston, Tex., 24 mi. 30 in. natural gas line looping portion existing main line out of Carthage, Tex. into Mansfield area, La., **$1,250,000;** trunk and field gas lines, booster station, Mansfield area, La., **$1,500,000.**

CONSTRUCTION REPORTS—Second Section

WATER SUPPLY

BIDS ASKED

November 7

Md., Hyattsville — Washington Suburban Sanitary Comn., Hamilton St., Contr. 691-W, water pump. station, incl. bldg., pumps and appurtenant piping, electrical sub-station and controls, roadway and site inprv., Willis School Filtration Plant, near Laurel. Plans deposit $20. Bids 10/17 rejected. CD 10/21.

Que., Ste. Foy — Municipality, supplying $2,000 lin. ft. c. i. water pipe, accessories, M. Gilbert, 251 St. Joseph St., Quebec City, engr. CD 8/1.

November 8

Mass., Salem—City, Purch. Agt., City Hall, pumping station equipment, North Beverly. Approx. $50,000. Plans deposit $25. CD 7/15.

November 10

O., Dayton—Comrs., Montgomery Co., Jessie B. Gano, clk., Courthouse, 1 m. g. elevated water storage tank in Van Buren Twp. Plans deposit $5.

November 12

Va., Middletown—Town, 50,000 gal. elevated steel storage tank, approx. 6,000 lin. ft. 4 and 6 in. mains, hydrants, valves, $40,000. Plans deposit $5. John S. Hale, Echol Bldg., Staunton, engr.

November 14

Md., Hyattsville — Washington Suburban Sanitary Comn., Hamilton St., approx. 28,800 ft. 20- to 42-in. supply line from Columbia Pike near Paint Branch to Wheaton, Montgomery Co., Contr. 695-W. Plans deposit $10; adv. ENR 11/3. CD 10/10.

November 15

Ga., Springfield—City, 22,000 lin. ft. water lines and 60,000 gal. elevated tank. Plans deposit $15. John J. Harte Co., 284 Techwood Dr. N. W., Atlanta, engr.

N. J., Vineland—Bd. Comrs., Vineland Boro, Comrs. Chambers, Municipal Bldg., water supply imprvs., Contr. 5, elevated tank foundations; Contr. 6, 400,000 gal. elevated storage tank. Plans deposit $10. Havens & Emerson, 233 Broadway, New York, 7, N. Y., consult. engrs.

November 22

Mass., Boston—Metropolitan District Comn., 20 Somerset St., Contr. 184, 20 in. pipeline to Bellevue Reservoir, incl. furnishings, laying approx 9,100 ft. 20 in. pressure pipe, bldg. appurtenant structures, manholes, culverts, etc. Plans deposit $10. Karl R. Kennison, ch. engr.; adv ENR 11/3.

●N. Y., East Meadow—East Meadow Water Dist., c/o Town Clk., Town Hall, Hempstead, water distr. sys., pump. stations, etc. $2,000,000. Plans deposit $20. Joseph Watterson, 176 Mineola Blvd., Mineola, archt. Sidney B. Bowne, 272 Front St., Mineola, engr.

Tex., Houston—City, City Hall, 900 Brazos St., water pump station, incl. 600,000 gal steel storage tank, brick, concrete pump house, auxiliary station at airport. $130,000 Frank Baldwin, city engr. CD 2/28.

Bids Asked

Tex., Houston—Carl C. Sharp & Assoc., 2422 Wordsworth St., c. i. waterlines, facilities, 400 acre off LaPorte Rd. near Simms Bayou. $45,000

LOW BIDDERS

Calif., Long Beach—City, Oct. 20, 11,177 lin. ft. 36 in. concrete watermains, Alt. I, prestressed pipe and Alt. II not prestressed pipe, from Pipeline Constr. Co., 2391 Main St., Riverside, Alt. I, **$334,695**; Alt. II, **$378,107**. CD 9/19.

Md., Hyattsville — Washington Suburban Sanitary Comn., 4017 Hamilton St., Oct. 24, Contr. 676, 1-to 16-in. c. i. watermain, various streets, in Bowie, from Ahl Bros., Frederick Rd., Wilanbanm Hills, Hyattsville, **$34,892**. Harry R. Hall, c/o owner, engr. CD 10/21.

Md., Hyattsville — Washington Suburban Sanitary Comn., Hamilton St., Oct. 24, Contr. 693-W, approx. 10,000 ft. 42 in. force main from Rocky Gorge Pumping Station to Willis School Filtration Plant, near Laurel, from Leo Butler Co., 8416 Georgia Ave., Silver Spring, **$249,223**. CD 10/13.

Md., Towson—Comrs. Baltimore Co., Court House, Contr. 172-W, furnishing, erecting 300,000 gal. elevated steel water tank, tower, appurtenances, from Pittsburgh-Des Moines Steel Co., 270 Broadway, New York, N. Y., **$55,750**. CD 9/26.

Mass., Framingham—Town, P. Wks. Bd., Memorial Bldg., Oct. 17, water pump. station, from J. McDonald Constr. Co., 90 Rowe St., Auburndale, **$44,872**, equipment, from J. F. Metilane Co., 14 Boylston Pl. Brookline, **$39,750**. CD 10/11.

Michigan—State Hy. Dpt., Lansing, altering water sys. and Detroit Fire Dpt., High-Pressure sys. adjacent to Fort St. Crossing of John C. Lodge Expressway, Detroit, Proj. UI 82-127 C 16, Wayne Co., from F. C. Atletwed, St. Clair, **$195,830**. CD 10/12.

Mont., Billings—Yellowstone Co., Courthouse, Oct. 17, installing 4,636 ft. 6 and 8 in. c. i. watermain in Dist. 112 and 2,560 ft. 8 in. c. i. watermain in Dist. 113, from Long Constr. Co., Treasure State Bldg., **$28,518**. CD 9/28.

N. C., High Point—City, Oct. 17, water and sewer imprvs., from N. E. Brewer Co., 8 W. 3 St., Winton-Salem, **$81,821**. Wm. F. Freeman Engineers, Inc., High Point, engr. CD 4/4/46.

S. D., Deadwood—City, rejected bids Oct. 12, pump house, pump, piping and 400,000 gal. reservoir. Scott Eng Co., Watertown, engr. CD 10/5.

Tenn., Lake City — Town, Oct. 10, WW imprvs., from G. M. Ferris, Athens. **$49,181**. CD 9/30.

Tex., Houston—J. Deady Smallwood, Citizens State Bank Bldg., Oct. 24, c. i. watermains, from W. P. Holland Co. & N. Kennedy & Sons, 1st Natl. Bank Bldg., **$43,300**. CD 10/18.

Tex., Pleasant Grove (Dallas P. O.)—Dallas Co. Water Control & Imprvt. Dist. 3, 8122 Macon Dr., Oct. 17, Contr. 2, steel water tower and surf. reservoir, pump house, from C. Shield, Hy 75, Dallas, Tex., and Chicago Bridge & Iron Co., Hunt Bldg., Tulsa, Okla., **$45,732**. Est. $56,500 D 9/28

CONTRACTS AWARDED

Ala., Auburn — City, miscellaneous WW imprvs., to Zeigler Appliance & Supply Co., Greenville, Ala., **$28,000**.

Ga., Waverly Hall—Town, WW imprvs., to Mayo Plumbing Co., Waverly Hall, **$45,500**. CD 12/21/45.

Miss., Yazoo City—Yazoo Co., D. S. Shackelford, clk., Sept. 23, 2 water wells for Miss. Chemical Corp. Plant, to Carloss Water Well Supply Co., 111 Concord Ave., Memphis, Tenn., **$32,000**. CD 9/13.

●N. Y., Schenectady—U. S. Atomic Energy Comn., Schenectady Operations Office, P. O. Box 1069, water supply lines, West Milton Area, Inv No. AE-50-SCH-2, to Sidney K. Johnson, Norwich, **$67,201** Bids 10/4. CD 9/14.

Okla., Tulsa—City, Contr. 7, 15 m. gal. concrete reservoir, to Manhattan Constr. Co., Muskogee, concrete pipe, **$372,178*****Contr. 8, 10,000 lin. ft 36 in. steel pipeline, to Culver & McGuire Constr. Co., 4314 E. 4 Pl., Tulsa, **$247,411**. Bids 10/14. CD 10/24, under LB.

Tex., Dallas — Terminal Bldg. Corp., c/o 2nd unit Santa Fe Bldg., c. i. waterlines, Trinity Industrial Area, to Williams & Wagner Constr. Co., 8515 Preston Rd., **$36,000**.

Tex., San Antonio—Billy Mitchell Village, Inc. and Southwest Homes Texas Co., 817 Insurance Bldg., WW, to C. L. Browning Jr & Co., Travis Bldg., **$56,610**. CD 7/29.

Tex., San Antonio—Cecil Stoker, 6447 W. Commerce St., c. i. waterlines, 228 acre subdivision, own forces. Approx. **$30,000**.

W. Va., Bethlehem—Bethlehem Boro, water supply sys. 2 m.g. standpipe, 18,670 ft. 6 and 8 in. c.i. pipe, hydrants meters, 9,000 ft. 2 in galvanized pipe, to H. W. Alvard & Inc, Bernardsville, N. J. **$56,122**. Est. $60,000. J Paul Blondon, Keyser, engr.

Ont., Etobicoke—S. Eckersley, clk. Etobicoke Twp., 4947 Dundas St., 1 m. ø concrete reservoir, to Ramsay Contg. Co., Ltd.,-170 Perth Ave., Toronto, Approx. **$55,590**. Bids 10/17. CD 10/12

Ont., Toronto—City, H. E. Mc Cullman, mayor, laying, joining 4-to 12-in. watermains, appurtenances on Toronto Island from filtration plant to Ward's Island and from filtration plant to Harlan's Point, to Leaside Contg. Co., 48 Lavender Rd. Approx **$63,410**. CD 9/26

Que., Drummondville—Municipality, watermain extens., day labor, **$100,000** voted. CD 2/18/47.

Que., Magog—Municipality, watermains, to Bosco Constr. Inc. 47 Sherbrooke St., Magog **$35,000**. L. Archambault Town Hall, engr. CD 11/22/46.

Que., Victoriaville—Village water and sewer extens., 30 and 12 in sewer pipe and 6 in water pipe, to La Salle Paving, Ltd., Victoriaville and International Supply Ltd., 1117 St Catherines St. W., Montreal. Approx. **$81,286**.

SEWERS, WASTE DISPOSAL

BIDS ASKED

November 7

Mass., Lexington — Town, Bd. Selectmen, Town Hall, sanitary sewers, appurtenances, completion of Contr. B started by previous contractor, $50,000 Plans deposit $10 Metcalf & Eddy, 1300 Statler Bldg., Boston, engrs. CD 11/1/46

November 8

Minn., Wabasha—City, Utilities Comn., H. J. Eggenberger, secy., sewer exten., Contr. A, and supply well, Contr. B; 7,507 lin. ft., 6 and 10 in. sewer mains, 23 manholes, 2,340 ft. 6 in. house connections, 124 Y branches and plugs, 90 ft. 8 in. c. i. sewer pipe (hy. crossing) 4 cut-ins for existing manholes, 2 false bottoms for manholes, 12 ft. 6 in. stubs for house connections to manholes. Alt. bid 1—2,340 ft. 6 in. house, Alt. bid 2—relocate 900 ft. 6 in. house connections, 3 manholes, Approx. $50,000. Plans deposit $15. Davy Eng. Co., 502 Main St., LaCrosse, Wis., engr. CD 6/2.

November 16

Calif., San Francisco—Dpt. P Wks., City Hall, Lake Merced sewer tunnel, Sect. B. Approx. $50,000. Plans deposit $25. Ralph Wadsworth, City Hall, city engr. CD 11/15/44.

November 18

Calif., Empire—Empire Sanitary Dist., sanitary sewers, Approx. $50,000. Plans deposit $10. L. Cedric Macabee, 156 University Ave., Palo Alto, engr. CD 11/13/46.

December 6

Ind., Greencastle—Bd. P. Wks., Harold W. Stewart, mayor, Greencastle, sewage treatment plant addn., sewers, Div. 1, grit removal equip., settling tank equip., aeration unit, sludge beds, digester and control house, pump and blower bldg., Div. 2, 36,390 lin. ft. 8- to 12-in. pipe, 1,210 lin. ft. 6 in. service pipe, 133 manholes; Div. 3, 4 sewage lift stations with pumps and piping, 4,900 lin. ft. 4 and 6 in. c. i. force main, 105 lin. ft. 10 and 12 in. vitr. clay pipe, 170 lin. ft. 18 in. corrugated metal pipe, 4 manholes, $360,000. Plans deposit $10. Paul J. Kaiser & Assoc., 671 Tippecanoe St., Terre Haute, consult. engrs. CD 4/18/46.

December 12

Mass., Lawrence—At office Gordon E. Gaffney, city clk., City Hall, Common St., refuse incinerator. Plans deposit $25. Ashton, Huntress & Pratt, 477 Essex St., archts. Metcalf & Eddy, 1300 Statler Bldg., Boston, engrs. CD 10/18

Bids Asked

Tex., Houston—Carl C. Sharp & Assoc., 2422 Wordsworth St., sanitary and storm sewers, 400 acre off LaPorte Rd. near Simms Bayou. $75,000.

SOON LETS CONTRACT

Colo., Littleton—Centennial Turf Club, c/o Roy B. Barnes, pres., E & C Bldg., Denver, soon lets contract sewerage sys. and water distr. sys. for race track, Centennial Park. Henry A. Koch, Chamber of Commerce Bldg., Denver, archt. and engr. CD 3/30.

LOW BIDDERS

Calif., Bishop—City, Oct. 17, sewage treatment plant, from H. E. Famularo, 2740 W. 1 St., Santa Ana, **$57,345**. CD 9/30.

Idaho, Boise — City, City Hall, main and lateral sewers, Arlington-Cruzen Imprvt. Dist., from Intermountain Plumbing Co., 14 and Grove Sts. **$160,944**. CD 3/25/48

N. Y., Kew Gardens—President Queens Boro, Boro Hall, 120-55 Queens Blvd., Zone 15, Oct. 11, sewers, Liberty Ave. and 177 St., from Marinelli Constr. Corp., 14-26 26 Ave., Long Island City, **$52,895**. CD 10/3.

N. Y., Port Chester—D. A. O'Connell, village clk., Police Headquarters Bldg., 350 N Main St., general contract refuse incinerator plant, from P. D. Rich Co., 322 Main St., Stamford, Conn., **$175,138**; incineration equip., from Pittsburgh-Des Moines Steel Co., Neville Island, Pittsburgh, Pa., **$168,400**. CD 9/20.

Tex., Houston—J. Deady Smallwood, Citizens State Bank Bldg., Oct. 24, sanitary sewer lines, from W. P. Holland Co., and N. Kennedy & Sons, 1st. Natl. Bank Bldg., **$66,492**. CD 10/18.

Tex., Marlin—City, c/o Mayor, Marlin, Oct. 18, sanitary sewer imprvs., incl. Contr. 4 sewer lines, from George Kies, 1506 W. Lynn St., Austin, **$54,025**. CD 9/23

Wyo., Newcastle — City, sewers, from Dawson, Corbett & Shelp, Rawlins, **$74,903**. CD 11/3/46.

CONTRACTS AWARDED

Ark., Augusta—City, sewer and WW sys. extens., imprvs., to North James Constr. Co., Pyramid Bldg., Little Rock, **$207,325**. Bids 10/6. **(Correction**—name of contractor). CD 10/19 under Water Supply and Sewers, etc., CA.

Calif., Santa Barbara—City, sewage treatment plant, to Hermann Co., 417 S. Hill St., Los Angeles, **$661,890**. Bids 10/13 CD 10/20, under LB.

Conn., New London—City, W. J Ruddy, purch. agt., City Hall, 2 story, brick, steel, concrete incinerator addn., to Hewlett Constr Co 600 Lindley St., Bridgeport, Approx. **$50,000**. Grieschaber & Neilan 30 Broad St., archts.

Ind., Liberty—Town, Bd P Wks. sewers to Columbia Constr. Co., 2108 Columbia Ave., Indianapolis, **$223,030**. Awarded 10/24. CD 10/21, under LB

Tex. Jacinto City (P. O. Houston)—City of Jacinto City, 10326 Palestine St., Houston, drainage own forces **$55,000**. Frank J. Metzko Scanlan Bldg. Houston, engr. CD 3/4

Chapleau—Town J. R. Sepre, clk., laying approx 4½ mi sewers and sewer connections, 2 small pump houses, to Caswell Constr. Ltd., 56 Rand Ave. Kirkland Lake. Approx **$200,000**. Bids 10/17. CD 10/4.

Ont., St. Catherines—Municipality, sewage disposal plant, to Ontario Constr. Co., Ltd., P. O. Box 36, St. Catherines, **$73,610**. Awarded 9/30. Dineen-Philips & Robert, 63 John St., Hamilton, engrs. CD 11/9/43.

BRIDGES

BIDS ASKED

November 8

Minn., Hallock—State Hy. Dpt., St. Paul, rejected bids Sept. 13, 3 beam span 151 ft. Bridge 6651, over Two Rivers, S. P. 35-502-07 (AAR 3), Minn., Proj. S 151 (3), $50,000. Plans deposit $2.15. CD 8/24.

Ont., Barrie—E. W. Jones, engr., c/o Simcoe Co., Barrie, 175 ft. span reinforcement bridge in Lot 23, Concession 5, Flos Twp., known as Kirkpatrick Bridge. Approx. $125,000.

November 14

Texas—State Hy. Comn., Austin,
Bosque Co.—Bosque River Bridge and approaches 2.699 mi. Hy. FM 56 and 215, Proj. S. 166 (2) and S. 507 (3). $170,000. D. C. Greer, c/o owner, engr.

Texas—State Hy. Comn., Austin,
Medina Co.—3 bridges, approaches, 0.34 mi. Hy. F. M. 462, from sections between Hondo and Yancey, Control No. 848-1-3.

November 15

Florida—State Hy. Dpt., Columbus Hotel, Miami,
Alachua and Union Counties—clearing, grubbing, grading, sand bit. road mix ten-35 ft. span and composite I-beam span bridge on steel pile bents 1.997 mi. approaches and bridge across Santa Fe River, Rd. 241, State Proj. Jobs. 2614-104 and 3906-103, $55,000.

Kansas—State Hy. Dpt., Independence,
Coffey Co.—Bridge Station 3 plus 70, 48 ft.-60 ft.-48 ft. continuous I-beam spans, grading and light type surf. 0.244 mi. bridge and approach grades over Wolf Creek approx. 2¾ mi. southeast of Burlington between Sec. 31, T21 S, R 16 E and Sec. 6, T 22-S, R. 16 E. Proj. 16-S 811 (1). R. C. Keeling, Topeka, engr.

Texas—State Hy. Comn., Austin,
Bowie Co.—wid'n bridges, approaches 1.238 mi. Hy. US 59, between Texarkana and 7 mi. southwest, Control No. 218-1-8, FP No. F475 (3).

Jack and Palo Pinto Counties—bridges and roadway approaches 0.349 mi. Hy. FM 206, Keechi Creek, approx. 20 mi. south of Jacksboro, Control No. 391-7 and 8-4 and 2, FP No. S 449 (4) and (5).

November 16

California—State Div. Hys., Sacramento,
Merced Co.—108 ft. timber trestle bridge over Dry Creek on Snelling-La Grange Rd. about 7 mi. south of La Grange. G. T. McCoy, state hy. engr.

November 18

Idaho—State Hy. Dpt., Boise,
Nez Perce Co.—deck, rail and appurtenant structures on 1352.2 ft. steel and concrete bridge, second phase of bridge over Snake River, Lewiston.

†Missouri—U. S. Eng., 601 Davidson Bldg., Kansas City, Mo., Milwaukee Bridge, Truman Bridge and Hawthorn Pumping Plants, along right bank Missouri River River, East Bottoms, Kansas City, Mo., CIVENG 23-028-50-40. CD 10/18.

November 22

Wisconsin and Minnesota—State Hy. Comn., Madison, Wis., and Comr. Hys., State of Minnesota, at office State Hy. Comn., Madison, Wis.,
St. Croix Co., Wis. and Washington Co., Minn.—superstructure B-55-911, The Hudson Interstate Bridge, 0.439 mi. U. S. Hy. 12, Contr. 1, F.I. 06-5 (8).

Wisconsin—State Hy. Comn. Madison,
Grant Co.—Contrs. 2 and 1, Structures B-22-15, B-22-22 and B-22-21 and approaches, S. T. Hy. 80 and C. T. Hy. A, from Station 150 plus 91.75 to Station 151 plus 58.25 from Station 417 plus 55.75 to Station 418 plus 24.25; from Station 0 plus 00 to Station 4 plus 00, 0.026 mi. and 0.976 mi. The Platteville-Montfort & Arthur Rewey Rd., Projs. T0510 (1) and S 0261 (4).

Winnebago Co.—Contr. 1, Structure B-70-1, City St. from Station 6 plus 04.25 to Station 14 plus 22, 0.155 mi. The Racine Street Bridge, Menasha, Proj. U 09-1 (16).

November 28

New Jersey and Pennsylvania—At office Joseph K. Costello, secy., The Delaware River Joint Comm., Administration Bldg., Bridge Plaza, Camden, N. J., Contr. 6, structural materials for reconstr. expansion dams on Philadelphia and Camden approaches; Contr. 8, new traffic lane signal sys. and misc. electrical work; Contr. 9, new traffic lane market structures; furnishing pipe, fittings, specialties and sundries for dry standpipes. Plans deposit $10; adv. ENR 11/3.

After January 1

●**Tennessee**—State Hy. Dpt., Nashville,
Davidson Co. — bridge over Cumberland River, near Nashville. $2,500,000.

LOW BIDDERS

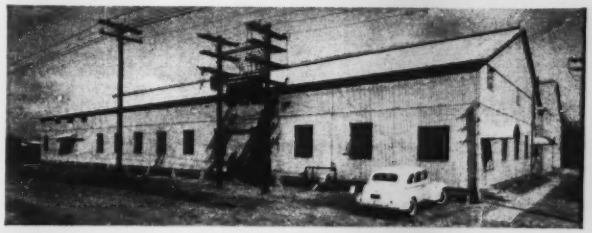
Idaho—State Hy. Dpt., Boise, 1210.5 ft. timber bridge across Snake River on Acequia-Jackson Rd. between Cassia and Minidoka Counties, from C. B. Lauch Constr. Co., 435 Ada St., Boise, **$73,214.** Est. $77,034. CD 10/17/44.

Ind., Fort Wayne—Rd. Comrs. Allen Co., Courthouse, Oct. 20, 4 span, 260 ft. continuous steel beam bridge, 40 ft. roadway over St. Marys River, Taylor St., from Rieth-Riley Constr. Co., P. O. Box 477, Goshen, **$195,795.** Est. $200,000. CD 9-29.

Louisiana—State Dpt. Hy., Baton Rouge, Oct. 19, eight 50 ft. and one 70 ft. I-beam span, Bayou Macon Bridge, near Eureka Ferry, State Rte. 241, grav. 0.313 mi. approaches.

Prompt Delivery on

STEEL BUILDINGS



One of the many industrial steel buildings made by Allied Steel

• *Custom Built* • *Insulated if Desired*

- Structural Steel Fabrication
- Gratings
- Ladders
- Platforms
- Safety Cages
- Ventilators

Allied Steel is in a position at the present time to furnish *prompt delivery* on Steel Buildings, Structural Steel Fabrication and Steel Accessories.

Allied will completely engineer your special building requirements from analysis of your need to placing the last piece of steel.

Allied buildings can be furnished insulated; they are flexible, can be lengthened or shortened; afford nearly 100 percent salvage; are portable; have low initial investment and low cost maintenance; are fire resistant and weathertight.

ALLIED PRODUCTS STEEL

WRITE FOR ALLIED'S CATALOG

ALLIED STEEL PRODUCTS CORP.

2112 North Lewis Ave. Tulsa, Oklahoma

"Gunite" ..... the sand-cement product of the "CEMENT GUN," for Concrete and Masonry Repairs, Pre-Stressed Tanks, Steel Encasement and for lining Reservoirs, Sewers and Tunnels.

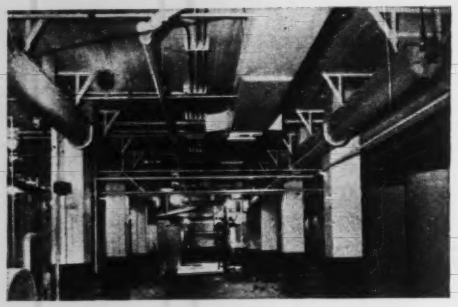
CEMENT GUN COMPANY

"GUNITE" CONTRACTORS

GENERAL OFFICES—ALLENTOWN, PENNA., U.S.A.

MANUFACTURERS OF THE "CEMENT GUN"

IN NEW CONSTRUCTION . . . SMOOTH CEILINGS SYSTEM permits



Low Cost

EQUIPMENT INSTALLATION PLUS

- REDUCING CEMENT FORM WORK
- LOWER CEILING HEIGHTS
- LESS WASTE SPACE

Flat slab construction provides Clear BEAMLESS Ceilings—WITHOUT flared caps!

SPECIAL STEEL GRILLAGES used in the Smooth Ceilings system of flat slab design, are embedded in the concrete slab. They eliminate beams, drop panels and flared column caps which reduces the "extra" cost and time of raising story height or "dodging" when installing air ducts, conveyors, piping and electrical fixtures. These Grillages can be used with reinforced concrete, structural steel or steel pipe columns.

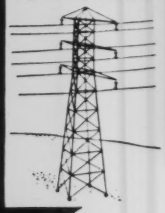
BEAMLESS CONSTRUCTION also reduces expensive concrete form work, lowers story height and makes waste space a thing of the past.

COMPARE Smooth Ceilings System with other types of construction. "Discover" the savings!

WRITE FOR NEW FREE BULLETIN TODAY!

SMOOTH CEILINGS SYSTEM
802 Metropolitan Life Bldg., Minneapolis 1, Minn.

IF IT'S IRON OR STEEL



REMEMBER to have it HOT DIP GALVANIZED

(DIPPED IN MOLTEN ZINC)

Only HOT DIP Galvanizing provides the heaviest practicable coating of zinc *inseparably bonded* to the steel. For the longest-lasting economical rust prevention, specify "Hot Dip Galvanizing" done by a member of the American Hot Dip Galvanizers Association. List of member plants available by writing to the Association's headquarters in the First National Bank Building, Pittsburgh 22, Pennsylvania.

S.P. 821-23-01, Franklin Parish, from W. R. Fairchild, Hattiesburg, Miss., **$91,362.** CD 10/17.

●**La., Melville**—Transcontinental Gas Pipe Line Corp. M & N Bldg., Houston, Tex., Oct. 20, substructure only for suspension bridge over Atchafalaya River, near here, from Kansas City Bridge Co., B. M. A. Bldg., Kansas City Mo., **$1,011,140;** superstructure only for same, from American Bridge Co., Frick Bldg., Pittsburgh, Pa., **$849,747.** Matthews & Kenan, 1905-09 Transit Tower, San Antonio, Tex. and Mitchell & Hunt, 1515 Transit Tower, San Antonio, assoc. engrs.

North Carolina—State Hy. & Pub. Wks. Comn., Raleigh, Oct. 25, bridge, approaches over Dutchmans Creek on NC 273 in Mount Holly, Proj. No. BS 9-6-81-147, Gaston Co. from Harvey H. Stewart, 1200 S. Graham St., Charlotte, **$66,480.** Est. $75,000-$100,000. CD 10/14.

Wash., Bothell—King Co., County-City Bldg., Seattle, Zone 4, rein.-con. girder bridge over Sammamish River, from Tower Constr. Co., 125 33 Bothell Way, Seattle, **$63,905.**

CONTRACTS AWARDED

Tex., Houston—Harris Co., Comrs. Court, Houston, (secondary road) wooden type bridge, force account, **$60,000.** Hugo Zapp, co. engr.

STREETS AND ROADS

BIDS ASKED

November 8

Massachusetts—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,

Leominster—state hy. and bridge, F-273-F(3)-273. Approx. $750,000. Plans deposit $10. P. H. Kittfield, ch. engr. CD 2/4/48.

November 9

Ohio — State Hy. Dpt., T. J. Kauer, dir., Columbus, Zone 15,

Ashland and Medina Counties—c. conc. 2.529 mi. U.S. R. 224. Plans deposit $2.75.

Cuyahoga Co.—c. conc.-hot mixed, hot laid b. conc. and constructing concrete rigid frame bridge, at Station 16 plus 50 and concrete rigid frame bridge at Station 66 plus 30, 1.391 mi. County Rd. 39. Plans deposit $3.50.

Franklin Co.—wid'n., waterbound macad. and b. conc. surf., construct steel beam bridge with concrete deck, with new concrete piers and concrete caps, and stone masonry extens. to wings of existing abutments, Morse Rd. Bridge over Alum Creek, 0.79 mi. County Rd. 17. Plans deposit $2.75.

b. conc. resurf., wid'n. 4.647 mi. U.S. R. 23. Plans deposit $2.75.

Geauga Co.—b. conc. paving, wid'n., resurf. 2.458 mi. U.S. R 6.

Lucas Co.—hot-mixed, hot-laid b. conc. on waterbound macad. paving 1.975 mi. County Rd. 10.

Madison Co.—bit. road mix on waterbound macad. paving and construct continuous concrete slab bridge and concrete substructure 0.321 mi. S. R. 38.

b. conc. paving, construct continuous steel beam bridge with concrete deck and substructure. Bridge No. MA-161-15. 0.151 mi. S. R. 161. Plans deposit $2.75 each.

Marion Co.—conc. base wid'n. and b. conc. surf. 0.519 mi. U.S. R 23, S.R 4. Plans deposit $2.50.

Montgomery Co.—b. conc. paving and resurf. 0.321 mi. S. R. 48. Plans deposit $2.75.

Paulding Co.—bit. surf. tr. paving on soil cement base course 4.796 mi. S. R. 500. Plans deposit $1.25.

Pickaway Co.—b. conc. paving and construct continuous steel beam bridge with concrete deck and substructure. Bridge No. PI-104-89, 1.742 mi. S. R. 104. Plans deposit $3.

Scioto Co.—b. conc. wid'n. and resurf. construct 2 concrete slab bridges, Bridge No. SC-139-46, 3.841 mi. S. R. 139.

Union Co.—bit. road mix on waterbound macad. paving and construct concrete slab bridge with concrete substructure Bridge No. UN-347-85, 0.189 mi. S. R. 347. Plans deposit $2.75 each. CD 11/24/43.

November 10

La., New Iberia—Iberia Parish Police Jury, New Iberia, C.A.A. Proj. No. 9-16-023-902, access road from Hy. 90 to the Iberia Airport Administration Bldg. Plans deposit $5. John Rochel, New Iberia, engr.

New Jersey—Spencer Miller, Jr., comr. State Hy. Dpt. Trenton.

Somerset Co.—constr. 1.268 mi. Amwell Rd., from Township School House to Neshanic Creek, Hillsborough Twp., Fed. Aid Secondary Proj. S-100(1). Plans deposit $10.

November 14

Texas—State Hy. Comn., Austin.

Cooke Co.—flexible base, double asph. surf. tr. 5.217 mi. Hy. FM 373, from Muenster to 5.2 mi. south, Control No. 823-2-1, FP No. S. 1218 (1).

Jim Wells Co.—pavement wid'n. 0.642 mi. Hy. US 281 in city of Premont, Control No. C 255-2-7. CD 7/30/43.

Texas—State Hy. Comn., Austin.

Coryell Co.—fdn. course, prime coat and single asph. surf. tr. 9.919 mi. Hy. FM 929, S. 1190 (1), $73,000.

Dallas Co.—grading, structures, storm sewers 1.438 mi. Hy. US 75, Proj. F 515 (12), $410,000.

Deaf Smith Co.—flexible base, double asph. surf. tr. 36.357 mi. Hy. FM 1058, S. 1309 (1), $535,000.

Hildago Co.—flexible base and single asph. surf. tr. 12.846 mi. Hy. FM 681 and FM 1017, S. 1444 (1) and S. 1445 (1), $65,000.

Hudspeth Co.—flexible base, and asph. surf. tr. 23.677 mi. Hy. FM 1111, Proj. R-1282-2-1, $158,000.

Mason Co.—flexible base and double asph. surf. tr. 7.332 mi. Hy. 87, Proj. F 293 (3), $245,000.

Real Co.—roadbed tr. and base preservative 7.518 mi. Hy. FM 1120, $52,000.

San Jacinto Co.—flexible base and single asph. surf. tr. 5.314 mi. Hy. FM 946, Proj. S 1367 (1) and R. 939-5-2, $51,000. D. C. Greer, c/o owner, engr. CD 7/30/43.

Texas—State Hy. Comn., Austin.

Galveston Co.—cold mix limestone rock asph. on shell concrete paving 1.232 mi. Hy. FM 517 and 518, Proj. V 978-1-2, C 978-2-2 and C 976-3-5. $225,000. D. C. Greer, c/o owner, engr. CD 7/30/43.

November 15

Florida—State Hy. Dpt., Columbus Hotel, Miami.

Bradford, Clay and Duval Counties—bit. resurf. 22.93 mi. Rd. 200 between north intersection of Hampton Cut-off and Rd. No. 228 at Maxville, State Proj. Jobs. Nos. 2801-901, 2801-111, 7103-901 and 7214-901.

Bradford Co.—bit. 0.11 mi. Rd. 230 between Rd. 200 and point approx. 0.10 mi. East, Job. No. 2805-103.

reworking lime rock base and applying bit. 0.427 mi. Rd. 100 between Rd. 200 and point approx. 0.427 mi. southeast, Job. 2802-901.

Broward and Dade Counties—dressing shoulders, sections of b. conc.; reworking section lime rock and b. conc. 17.778 mis. Road 7, between Rd. 814 and point approx. 9.038 mi. South and between Road 84 and point approx. 8.765 mi. South, State Proj. Jobs. 8610-106 and 8714-108, $135,000.

Collier Co.—bit. 5.043 mi. Rd. 92 between Gulf of Mexico in Collier City and point approx. 5.043 mi. East, Job. 0306-902.

bit. 19.218 mi. Rd. 29 between Immokales and Argyll, Job 0308-902.

Columbia Co.—reworking, wid'n. lime rock base applying bit. grading slopes, shoulders. 9.04 mi. Rd. 10 between Suwannee Co. line and beginning of c. conc. in Lake City, State Proj. Job. 2901-106, $110,000.

Dade Co.—installing special underdrains, inlets, etc. 0.114 mi. Rd. 7 on Northwest 7 Avenue running north and south of Northwest 54 St. in Miami, State Proj. Job. 8714-107, $11,000.

Flagler Co.—grading, S. B. R. H., one 237 ft. bridge incl. concrete deck girder spans on 18 in concrete piling with electrically operated double-leaf bascule, trunnion-type on concrete piers, 0.247 mi. State Rd. 11, over the Intercoastal Waterway between Bunnell and Flagler Beach, Fed. Aid Secondary Proj. S-385 (2) Job. 7302-202, $250,000.

Hamilton Co.—clearing, grubbing, grading, stabilizing base with lime rock applying bit. 3.836 mi. Rd. 143, between Georgia State Line and point approx. 3.840 mi. Southwest, State Proj. Job. 3207-101, $300,000.

Hendry Co.—bit. 8.986 mi. Rd. 80 between Lee Co. line and approx. point in LaBelle, State Proj. Job 0701-905, $33,000.

Hernando Co.—bit. 8.742 mi. Rd. 45 between Brooksville and Citrus Co. line, State Proj. Job. 0801-901, $12,000.

Madison and Hamilton Counties—grading, stabilizing, S. B. R. M. on main and two relief bridges approx. 505,525 and 208 ft long over Withlacoochee River, steel I-beams with concrete deck on steel H-piling, State Rd. 6, over Withlacoochee River between Madison and Jasper, Fed. Aid Secondary Proj. S-190 (2) Jobs 3205-201 and 3502-202, $250,000.

Madison Co.—clearing, grubbing, grading, stabilizing base with lime rock and applying bit. construct 180 ft. bridge and one 120 ft. bridge, concrete deck on treated timber piling 17.649 mi. Rds. 475 and 480, between Cherry Lake and Road 10, near Greenville State Proj. Job 3575-103, $325,000.

Nassau Co.—lime rock base with bit. 0.689 mi. Rd. 108 in Hilliard on Second St. between Michigan St. and Rd. 15, State Proj. Job. 7401-101, $48,000.

Okeechobee Co.—reworking and wid'n. lime rock base applying bit. dressing shoulders 1.569 mi. Rd. 15, between South City Limits of Okeechobee and Rd. 78, State Proj. Job. 0102-108, $25,000.

Palm Beach Co.—bit. 13.919 mi. Rd. 716 between Rd. 89 at Twenty Milo Bend and point approx. 13.940 mi. northwest, State Proj. Job. 9314-903.

Polk Co.—Local lime rock base with bit. 11,760 sq. yd. Farmers Market in Bartow State Proj. Job. 1612-101, $12,000.

bit. 14.152 mi. Rds. 60 and 630 on Rd. 60 between Kissimmee River and point approx. 12.51 mi. northwest on Rd. 630 between Rd. 60 and point approx. 1.642 mi. southeast, State Proj. Jobs. 1613-903 and 1615-902, $30,000.

plant mix seal 1.246 mi. Rd. 600 sections in Lakeland, State Proj. Job 1601-901.

plant mix seal 1.292 mi. Rd. 17 in Haines City between Rd. 600 and point approx. 1.292 mi. south, Job 1609-902.

Sumter Co.—applying bit. 4.716 mi. Rd. 44, between Rd. 35 near Wildwood and Rd. 468, State Proj. Job. 1907-801, $10,000. Sam P. Turnbull, state hy. engr.

Kansas—State Hy. Dpt., Independence.

Anderson Co.—resurf. material 20.82 mi. from The Anderson-Coffey Co. line, southeasterly 20.82 mi. to K 31 to bit. west of Garnett, Proj. 31-2-47-49 AB (3).

resurf. material 3.257 mi. from Anderson-Coffey Co. line, east 3.257 mi. on K 57, Proj. 57-2-4750 (3).

Bourbon Co.—resurf. material 22.495 mi. from Bourbon-Linn Co. line S & E 22.495 mi. on K 3 except oil surf. on Uniontown and US 54, Proj. 3-6-4551 (3).

resurf. material 2.464 mi. from west junction of K 7 and K 31 east and north 2.464 mi. on K 7, Proj. 7-6-4752 (3).

resurf. material 11.912 mi. from Bourbon-Linn Co. line S & E 7.51 mi. on K 31 to oil surf. at Mapleton and from w city limits of Fulton, west 4.4 mi. on K 41, Proj. 31-6-4753 (3).

resurf. material 18.453 mi. from Bourbon-Neosho Co. line, east and north on K 39 to oil surf., Proj. 39-6-4754 (3).

resurf. material 6.001 mi. from junction of K 65 and K 3, east and north on K 65 to junction of K 31 and K 65, Proj. 65-6-4755 (3).

resurf. material 1.8 mi. beginning at point approx. 5 mi. west of junction K 31 and US 69 (N.E. cor. Sec. 31 T 23 S. R 24 E) thence south 1 mi. west 0.8 mi. to oil surf. at Hardin, Proj. D 31-6-4891 (2).

Coffey Co.—resurf. material 4.855 mi. from end of oil surf. east of Waverly east 4.855 mi. K 31 to Coffey-Anderson Co. line, Proj. 31-16-4756 (3).

resurf. material 26.436 mi. from Coffey-Lyon Co. line SE on K 57 to Burlington except oil in Strawn and from 1.053 mi. east of junction K 57 and US 75 east 2.612 mi. on K 57 and from east city limits of Le Roy, east, 5.834 mi. on K 57 to Coffey-Anderson Co. line, Proj 57-16-4757 (3).

Franklin Co.—resurf. material 8.254 mi. beginning at junction of K 68 and detour at SW corner Sect. 35, T 16 S, R 18 E, thence north and east, 8.254 mi. on detour K 68 to end of c. conc. west of Ottawa, Proj. D 68-30-4889 (2).

resurf. material 5.402 mi. from Franklin-Osage Co. line, east 5.402 mi. K 68 to point 3 mi. east of Pomona, except bit. at Pomona, Proj. 68-30-4758 (3).

Greenwood Co.—resurf. material 17.6 mi. from intersection of Main St. and K 99 detour in Eureka, east and north 17.6 mi. on K 99 detour to Hamilton, Proj. D 99-37-4890 (2).

Labette Co.—grading, 9.268 subgrade reconditioning and L.T.S. 9.272 mi., Br. Station 57 plus 25 two 18x8x26 ft. rein.-con. bridge beginning at intersection of 19 St. and Briggs St. in Parsons, thence south on Co. Hy. to junction with US 59 approx. 2 mi. east of Altamont, Proj. 59 S 865 (1).

Linn Co.—resurf. material 3 mi. from junction of K 3 and K 31, south 3 mi. on K 3, Proj. 3-54-4759 (3).

resurf. material 27.127 mi. all of K 7 in Linn Co., except oil surf. in Mound City, Proj. 7-54-4760 AB (3).

resurf. material 3.019 mi. from junction of K 31 and K 52, south 3.019 mi. on K 31, Proj. 31-54-4761 (3).

resurf. material 8.201 mi .from junction of K 7 and K 35 east and north of K 35 to c. conc. in La Cygne, Proj. 35-54-4762 AB (3).

Miami Co.—Part grading 0.283 mi beginning near the intersection of Main and 6 Sts in Osawatomie, thence northwesterly 0.359 mi. to north city limits except 0.076 mi. for bridge, Proj. 155-61 S 292 (3).

Montgomery Co.—resurf. material 7.52 mi. from the Montgomery-Wilson Co. line, southerly 7.52 mi. on K 39, Proj. 39-63-4763 (3).

grading 4.807 mi. and Br. Station 248 plus 22.75 45-63 and 18-63 continuous concrete girder bridge beginning at junction with US 75 approx. 4 mi. north of Independence, thence west 4.638 mi. on C. Hy. except 0.002 mi. for Mo. Pac. R.R. Crossing.-Proj. 63-S 866 (1).

Neosho Co.—resurf. material 3.05 mi. from N. junction of K 6 and K 39 east on K 39 to Neosho-Bourbon Co. line, Proj. 39-67-5764 (3). R. C. Keeling, Topeka, engr.

Texas—State Hy. Comn., Austin.

Presidio Co.—flexible base, double asph. surf. tr. 2.879 mi. Hy FM 1112, from S.H. 17 in Marfa northeast 2.88 mi. Control No. 1283-1-1, FP No. S. 1407 (1). CD 7/30/43.

Texas—State Hy. Comn., Austin.

Bee and Live Oak Counties—structures, flexible base, single asph. surf. tr. 18.071 mi. Hy. FM 882 and FM 99, S. 1283 (1), S 1283 (2), R 348-11-1, $156,000.

Falls and Limestone Counties—flexible base, single asph. surf. tr. 11.019 mi. Hy. FM 413, S. 1071 (2) and (3), $115,000.

Gonzales Co.—roadbed tr. 11.592 mi. Hy FM 794, Proj. V. 1133-2-1, $110,000.

Hamilton Co.—fdn. course and single asph. surf. tr. 9.629 mi. Hy FM 220, Proj. S 506 (2), $80,000.

Orange and Jefferson Counties—hydraulic embankment 3.955 mi. Hy. US 90, Proj. FI 305 (3) and FI 56 (2), $210,000

Reagan and Crockett Counties—flexible base and double asph. surf. tr. 20.22 mi. Hy. RM 33, $114,000.

Terry Co.—stabil. fdn. course and double asph. surf. tr. 9.261 mi. Hy. FM 402, Proj. S. 1464 (1), $54,000.

Tyler Co.—flexible base and single asph. surf. tr. 14.439 mi. Hy. FM 1014 and 1013, Proj. S 1327 (1) and 1328 (1), $200,000. D. C. Greer, c/o owner, engr. CD 7/30/43.

November 17

New Jersey—Spencer Miller, Jr., comr. State Hy. Dpt., Trenton.

Gloucester Co.—constr. 4.3 mi. Route 44, Sects. 11 and 14 from Pierces Corner to Berkley Rd., W. Deptford Twp., Boro of Paulsboro and E. Greenwich Twp., Fed. Proj. F-122 (7). Plans deposit $10; adv. ENR 11/3. CD 2/4.

November 29

Ala., Mobile — Mobile Co. Bd. Revenue, Mobile, 6 road imprv. projects incl. 2401 mi. Extended date. J. B. Converse & Co., P.O. Box 1084, Mobile, engrs. CD 10/25.

Bids Asked

Tex., Houston—Carl C. Sharp & Assoc., 2422 Wordsworth St., street constr., asph. paving on 400-acre off LaPorte Rd. near Simms Bayou. $75,000.

LOW BIDDERS

Calif., Imola—State Div. Architecture, P. Wks. Bldg., Sacramento, Oct. 18, roads, walks, grading, Napa State Hospital, South Ward Group Units 2 and 3, from A. G. Raisch Co., 2048 Market St., San Francisco, **$51,000.** CD 10/3.

Calif., Los Angeles—Los Angeles Co., 501 Hall of Records Oct. 18, imprv. Valley Blvd. Lemon Ave. to La Puente Rd., from Griffith Co., 1060 S. Broadway, **$71,188.** CD 9/27.

Kentucky—State Hy. Dpt., Frankfort, Oct. 21, traffic bound slag, 1.351 mi. SP-10-165, Ashland-Grayson Rd., FI 8 (5), Boyd Co., from E. B. Lowman, 925 Greenup Ave., Ashland, **$206,874*****traffic bound limestone 4.066 mi. SP 110-286, Elkton-Allegre-Kirmansville Rd., Todd Co., from R. B. Tyler Co., 1446 Levering St., Louisville, **$95,621*****traffic bound limestone 5.091 mi. RS 85-204 Mell Ridge Rd., Metcalfe Co., from Henderson-Hite Constr. Co., Bardstown, **$49,845.** CD 10/5.

Louisiana—State Hy. Dpt., Baton Rouge, Oct. 19, shaping roadway, drainage structures, repairs to timber trestle bridge, aggregate type or soil cement base course, 2 applications b. conc. and other work in connection 8.376 mi. Mandeville-Abita Springs Hy. State Rte. 114, S. P. 281-03-02, St. Tammany Parish, from T. W. Kleinpeter, 146 S. Leo St., Baton Rouge, **$159,098.** CD 10/7.

Md., Silver Spring—Montgomery Co. Bd. Comrs., Court House, Rockville, bit. resurf. approx. 12,000 sq. yd. and approx. 10,000 lin. ft. c. conc. curb and gutters, Indian Spring Manor and Indian Spring Pike, from Wilmoth Paving Co. 60 P St. S.E., Wash., D. C., **$51,538.**

Mass., Boston—City, P. Wks. Dpt., City Hall Annex, Oct. 14, sheet asph. paving Arlington St., etc., Brighton, from J. P. Condon Corp., 105 Coolidge Hill Rd., Watertown, **$79,329.** CD 10/11.

Michigan—State Hy. Dpt., Lansing, Oct. 20, c. conc. 2.782 mi. County Rd., West Pontiac City limits west CS 63-46 C-1, Oakland Co., from Loselle Constr. Co., Wyandotte, **$117,034.** CD 10/12

New York—President Queens Boro, Queens Boro Hall, 120-55 Queens Blvd., Kew Gardens, Zone 15, Oct. 5, c. conc.-b. conc. repaving, Maspeth, 51 and Metropolitan Aves., from Macasphalt Constr. Corp., 33-15 Lawrence St., Flushing, **$108,080.** CD 9/28.

●**North Carolina**—State Hy. & P. Wks. Comn., Raleigh, Oct. 25, from Nello L. Teer Co., Trust Bldg., Durham, port stabil. base course and bit. surf. tr. 9.17 mi. 2 sects. county roads, Proj. No. 5-9-47-201, Orange Co., **$127,540,** est. $150,000-$175,000; bit. road asph. surf. course 24.88 mi. N. C. 71 and county roads, Proj. No. 6-9-58-203, Scotland and Robeson Counties, **$73,350,** est. $75,000-$100,000; traffic bound macad. or PCSBC and bit. surf. tr. and bit. conc. course 8.3 mi. Part 1, from N. Cherry St. extens. to Old Town; Part 2, Lasater Rd. from point southeast of Lewisville south to US 158, Proj. No. 8-9-71-201, Forsyth Co., **$92,467,** est. $100,000-$125,000; Portland cement stabil. base, bit. surf. tr. or bit. conc. surf. course and structures 5.7 mi. from point on US 64, approx. 0.2 mi. northwest of Chatham-Wake Co. line north to point approx. 3.4 mi. south of Chatham-Durham Co. line, Proj. 6-104, S-298 (1), Chatham Co., **$82,228,** est. $75,000-$100,000.

from Dickerson, Inc., Box 391, Monroe, STBC, bit. surf. tr., sand asph. or bit. conc. 24.2 mi. 5 sects. county roads, Proj. 7-9-60-201, Cabarrus Co., **$119,902,** est. $125,000-$150,000; STBC, or sand asph. or bit. conc. 39.2 mi. 10 sects. county roads, Proj. 7-8-64-201, Rowan Co., **$169,389,** est. $175,000-$200,000; STBC and bit. surf. 25.05 mi. 5 sects. county roads, Proj. 9-9-82-201, Tredell Co., **$128,016,** est $125,000-$150,000***from Wayne Eng. & Constr. Co., Inc., Box 254, Mt. Olive, STBC, bit. surf. tr. or sand asph. or bit. conc. surf. 12.7 mi. 2 sects. county roads in vicinity of Mt. Olive, Proj. 4-9-39-201, Wayne Co., **$77,428,** est. $100,000-$125,000; STBC, bit. surf. tr., or sand asph. or bit. conc. surf. 6.02 mi. from end of pavement on Anderson St. at city limits of Selma North to Little Devine, Proj. 4-9-36-202, Johnston Co., **$59,845,** est. $50,000-$75,000.

from J. S. Hill Constr. Co., Washington-STBC, and bit. surf. tr. 9.01 mi. Route 171, from point 16 ft. northeast of Beaufort-Martin Co. line north and northeast to point 3.5 mi. southwest of Jamesville, Proj. No. 1544, S-291 (1), Martin Co., **$113,519,** est. $100,000-$125,000***from Kiker & Yount, Inc., Reidsville, STBC and bit. surf. tr. 9.7 mi. NC 44, from point approx. 16 mi. east of Elizabethtown northeast and east to point on NC 41 west of Harrells Store, Proj. 2760, S-292 (1), Bladen and Sampson Counties, **$111,034,** est. $125,000-$150,000***from Grannis & Sloan, Inc., Fayetteville, sand bit. surf. course 8.23 mi. NC 41, from point on US 701 near White Lake east to west end of proposed bridge over south River at Sampson Co. line, Proj. 3035, Bladen Co., **$86,431,** est. $75,000-$100,000.

from Zeigler-Cline Constr. Co., Box 386, Fayetteville, STBC, sand asph. base course and bit. conc. surf. course and structures 8.14 mi. US 15-A, from point on US 15-A approx. 7 mi. north of Fayetteville, northeast to point 1 mi. south of Cumberland-Harnett Co. line, Proj. 3391 F-268 (8), Cumberland Co., **$169,958,** est. $250,000-$300,000; sand asph. surf. course 10.6 mi. 3 sects., county roads in vicinity of Fayetteville, Cumberland Co. Proj. 3-3-30-201, **$59,456,** est. $50,000-$75,000***from Pullen & Owens, 3rd Natl. Bank Bldg., Nashville, Tenn., traffic bound macad. and bit. surf. tr. 4.27 mi. NC 197, from point in NC 197, approx. 0.4 mi. upstream from Green Mountain northeast to intersection with NC 26, Proj. 8976 S-128 (2), Yancey and Mitchell Counties, **$138,146,** est. $125,000-$150,000***from Asheville Contg. Co., London Rd., Biltmore, Asheville, traffic bound macad. and bit. surf. tr. 3.82 mi. from point on US 19 and 129 at North Carolina and Georgia State line northwest along or near US 19 and 129 to approx. Sta. 50 then northwest to US 64, Proj. No. 9110 F-687 (1), Cherokee Co., **$174,094,** est. $200,000-$225,000. CD 10/14 and CD 10/18.

North Dakota—State Hy. Dpt., Bismarck, Oct. 21, grading, structural, traffic service grav., etc. 9.085 mi. U. S. Hy. 52 Prout-Kenmare southeast, FAP Nos. F-181 (8) and S-101 (4), Ward Co., from Cochlan Constr. Co. Inc., Rolla. **$132,328.** CD 10/10.

Ohio—State Hy. Dpt., Columbus, Oct. 19, wid'n., pave Detroit Ave., 0.6 mi. from W. Central Ave. to Wolcott Blvd., wid'n. to 52 ft. wide and four lane divided hy., building islands and channels at Detroit-Wolcott intersection, Lucas Co., from Launder & Son, Glendale Ave., Toledo. **$280,421.7** CD 10/5.

CONTRACTS AWARDED

†Colorado—Bureau Public Roads, General Services Admin., 254 New Customhouse, Denver, impry. 7.354 mi. Hartholt Pass, Colo., Forest Proj. 32-B4, Clear Creek Co., to Brown Constr. Co., 1530 E. Abriendo Ave., Pueblo, **$590,436.** Bids 10/4, awarded 10/13. CD 10/10, under LB.

Colorado—State Hy. Dpt., Denver, grading, surf., and structure 7.795 mi. State Hy. 185 between intersection with State Hy. 14, east of Fort Collins and Wellington, Larimer Co., to J. H. and N. M. Monaghan & Assoc., Derby, **$515,903,** Est. $696,012. Bids 8/18, awarded 9/12. CD 8/23, under LB.

Idaho—State Hy. Dpt., Boise, 5.389 mi. roadbed and grav., Alexander-Lund-Bancroft Rd., Caribou Co., to Parson & Fife, Brigham City, Utah. **$51,011.** Bids 10/21. CD 10/17/44.

Miss., Jackson—City, resurf. 8 streets, to R. B. Tyler Co., 1316 High St., **$51,311.** Bids 10/14. CD 99/27.

New York—Bureau Contracts & Accounts, Albany, reconstructing 11.02 mi. Jericho Turnpike (Route 25) from intersection with Route 110 at South Huntington and point near Smithtown, Suffolk Co., to Eline Corp., West Hampton Beach, **$694,916.** Bids 8/24. CD 8/29, under LB.

North Dakota—State Hy. Dpt., Bismarck, h. conc. surf. 16.6 mi. U. S. Hy. 10 from Dickinson to Taylor, FAP No. FI-260 (27) Stark Co., to S. Birch & Sons Constr. Co., Ford Bldg., Great Falls, Mont., **$479,141.** Bids 10/21. CD 10/10.

O., Toledo—Comrs. Lucas Co., Courthouse, ¾ mi. drainage pipe installation on Holland-Sylvania Rd. and Nebraska Ave. to George Coldbeck, Inc., 3201 Secor Rd., **$93,996.** Est. $107,520. Bids 10/18. CD 1/11.

Okla., Enid—City, c. conc. paving 14 residence blocks, to Banta Constr. Co., 1646 W. Main St., Oklahoma City, Zone 4, **$66,776.** Est. $68,855. Awarded 10/11. V. G. Thompson, 1100 W. Main St., Oklahoma City, engr.

Tex., Dallas—Terminal Bldg. Comrs., c/o 2nd unit Santa Fe Bldg., street grading and c. conc. paving, to Williams & Wagner Constr. Co., 8515 Preston Rd., Approx. **$77,000.** CD 10/13.

Tex., Eagle Pass—Maverick Co., c/o Judge, Courthouse, farm-to-market roads, 12 mi. Dimmit-Maud-Eagle Pass areas, **$145,000;** 9 mi. Kinney and Maud areas, **$110,000,** force account.

Tex., Edinburg—Hidalgo Co., Courthouse, Edinburg, road constr. and imprvs. Road Dist. 3, force account, **$158,000.** CD 8/25.

Tex., Houston—Harris Co., Comrs. Court, repairing, reconditioning farm-to-market roads and shell and gravel roads in low water areas, force account, **$110,000.** Hugo Zapp, co. engr. CD 8/28/47.

Tex., San Antonio—Billy Mitchell Village, Inc. and Southwest Homes Texas Co., 812 Insurance Bldg., asph. paved streets and imprvs., to C. L. Browning, Jr. & Co., Travis Bldg., Approx. **$70,000.** CD 8/1.

Tex., San Antonio—Cecil Stoker, 6447 W. Commerce St., street constr. and surf. 228 acre subdivision, own forces. **$63,300.**

†Washington—Bureau Public Roads, General Services Admin., Morgan Bldg., Portland, Ore., clearing, grubbing, grading Bumping Lake development project road, Wash. Forest Development Proj. 174-A, Yakima Co., to Howard Clevenger Co., Port Angeles, **$52,-892.** Bids 10/20. CD 10/12.

Wash., Moses Lake—City, City Hall, 127,-000 sq. yd. sidewalks, and 35,000 lin. ft. curb and gutter, to G. V. Nolte, Bellingham, **$90,750.** Est. $100,000, former award rescinded. Bids 19/17. CD 9/30, under CA.

B. C., Kelowna—Yellowknife Volcanic Gold Mines, Kelowna, road constr. from Marion Lake through to Great Slave Lake, day labor. **$63,000.**

B. C., Vancouver — Central Mortgage & Housing Corp., 360 Homer St., 42,000 sq. yd. asph. paving in Renfrew Heights Housing Development, to General Constr. Co., Ltd., Granville Island, **$97,860.** Bids 10/12, awarded 10/23.

Que., Victoriaville — Village, R. Beaudet, secy., paving streets, to Modern Paving Co., Ltd., Notre Dame du Bon Conseil. Approx. **$63,339.**

EARTHWORK, WATERWAYS

BIDS ASKED

November 9

†West Virginia—U. S. Eng., 925 New Federal Bldg., Pittsburgh, 19, Pa., tainter gate operating machinery, Morgantown Lock and Dam, Monongahela River, Serial No. CIVENG-36-058-50-44. Extended date. CD 10/4.

November 10

†Minnesota—U. S. Eng., 1217 U. S. P. O. and Custom House, St. Paul, Zone 1, clearing, grading, furnishing, replacing gravel backing and riprap on graded slope, right bank of main channel, Mississippi River at Red Wing, Inv. CIVENG-21-018-50-16. CD 10/19.

November 12

Ark, Helena—Bd. Comrs., Beaver Bayou Drainage Dist., 405 Solomon Bldg., clearing, grubbing, spoil bank leveling certain ditch banks in Beaver Bayou Drainage Dist., Phillips Co.

November 15

†Alabama—U. S. Eng., P. O. Box 1169, Mobile, 7, Ala., rehabilitation facilities at Lock 17 on Black Warrior River, Serial No. CIVENG 01-076-50-17.

November 15

†Missouri—U. S. Eng., P. O. Box 97, Memphis 1, Tenn., clearing approx. 11 mi. levee, right bank Mississippi River from Wyatt, beginning at point on Birds Point-New Madrid front line levee aprox. ¾ mi. below Cairo Bridge and exten. continuously downstream for 11 mi., CIVENG-40-041-50-59.

November 18

†Arkansas — U. S. Eng., 300 Broadway, Little Rock, installing tainter gates and machinery, Norfolk Dam, North Fork River, Serial No. CIVENG-03-500-50-25

About November 20

†Illinois—U. S. Eng., 826 U. S. Courthouse, & Customhouse, 1114 Market St., St. Louis 1, Mo., constructing East Alton Pumping Station Wood River Drainage and Levee Dist., Proj. Item I-E, Madison Co., incl. brick, concrete pump, station, bldg. and installing two 27,000 gpm vertical propellor pumps; two 200 rpm vertical dry pit pumps, one sump pump and appurtenances mechanical, electrical, sluice gates, valves, gages, placing 20,000 cu. yd. levee embankment incl. seeding mulching, etc.

On or About November 29

†Illinois—U. S. Eng. P. O. Box 97, Memphis, 1, Tenn., constr. Sect. 1, Item R-0-0 A. C., Cairo Floodwall Imprvts., along Ohio River Front in Cairo, Alexander Co. and exten. from 14 to 8 Sts., Inv. Serial No. CIVENG-40-041-50-57.

November 29

†Montana — Bureau Reclamation, Dpt. Interior, Columbia Falls, clearing approx. 14,695 acres Hungry Horse Reservoir. Rejected bids Sept. 20, Schedules 3 to 7 (inclusive). CD 10/5, under LB.

December 1

†Georgia—U. S. Eng., P. O. Box 1169, Mobile, Ala., radio telephone sys. for Allatoona Dam, Cartersville, Plans deposit $5

†Wash., Tacoma—U. S. Eng., 4735 E. Marginal Way, Seattle, Zone 4, rock riprap bank protection along Puyallup River, levee Serial No. CIVENG 45-108-50-33.

December 6

†Arizona—Bureau Reclamation, Dpt. Interior, Bldg. I-A, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point or f.o.b. cars Yuma, Ariz., switchgear assembly, and circuit breaker for Wellton-Mohawk Pumping Plants 1, 2, and 3, Wellton-Mohawk Div., Gila Proj., Spec. 2817. L. N. Mc Clellan, ch. engr., CD 9/12/44.

†Washington—U. S. Eng., 79 E. Poplar St., Walla Walla constr. 17.8 mi. section of Spokane, Portland & Seattle Ry. relocation incl. roadway, grading, between relocation Stations 5423 plus 00 and 5463 plus 00; 5751 plus 00 and 6663 plus 00; constr. bridges at Four Mile and Spuksbawki canyons, etc., Serial No. CIVENG-45-164-50-43.

Bids Asked

Tex., Houston—Carl C. Sharp & Assoc., 2422 Wordsworth St., site dirt work, on 400 acre off LaPorte Rd. near Simms Bayou. $30,000.

LOW BIDDERS

†Arkansas—U. S. Eng., 300 Broadway, Little Rock, Oct. 18, bank protection work on Jefferson County on Arkansas River Watershed, Pine Bluff; Inv. N CIVENG-03-050-50-18, from McGeorge Constr. Co., foot of Nebraska St., Pine Bluff, **$32,322.**

La., Marrero — Municipal Drainage Dist., Marrero, Oct. 19, 1 story, 36x53 ft., steel, metal siding pump stations and equip., for Sub-Drainage Dist. 1, from C. B. Spencer, 2350 Rousseau St., New Orleans, **$84,658.** CD 9/20.

†N. M., Los Alamos—U. S. Atomic Energy Comn., Los Alamos, Oct. 18, underground chamber, incl. elevator shaft and slab on grade Inv. No. 291 50-21, No. 3, TA-33, from Jack Adams, Santa Fe, **$60,521.**

†North Dakota—U. S. Eng., 1217 U. S. Courthouse and Customhouse, St. Paul 1, Minn., cancelled, bids to have been opened Nov. 1, swimming beaches at Homme Reservoir, Park River, Serial No. CIVENG-21-018-50-14. Will re-advertise.

†Ohio—U. S. Eng., Niagara and Bridge Sts., Buffalo, N. Y., Oct. 11, maintenance dredging, Cleveland Harbor, from Great Lakes Dredge & Dock Co., Williamson Bldg., **$41,700.** CD 9/23.

Tex., Houston—J. Deady Smallwood, Citizens State Bank Bldg., Oct. 24, dirt work for 1,100 dwelling units, and asph. paving, from N. Kennedy & Sons, 1st Natl. Bank Bldg., **$79,000.** CD 10/18.

CONTRACTS AWARDED

Minn., Gaylord—Sibley Co., County Ditch 42, to Nielson Bros., Onawa, Ia., **$95,648.** Bids 10/14. CD 9/6.

†Mississippi and Arkansas—U. S. Eng., P. O. Box 60, Vicksburg, Miss., restoring approx. 2,100 stations levee and dikes and approx. 15,000 cu. yd. levee repair on east and west banks of Mississippi River, Inv. No. CIVENG-22,052-50-30 to Southern Contg. Co., Boyce, La., **$78,034.** Bids 10/8. CD 8/17.

†Mississppi—U. S. Eng., P. O. Box 60, Vicksburg approx. 259,000 cu. yd. earthwork on east bank of Mississippi River, Catfish Point Dike Extens., Item 564-I., CIVENG-22-052-50-32, to C. J. List Constr Co., Railway Exchange Bldg., Kansas City 6, Mo., **$89,977.** Bids 9/20. CD 8/28.

†Montana — Bureau Reclamation, Dpt. Interior, Columbia Falls, clearing 1,070 acres land Sects. 1 and 2 in Hungry Horse Reservoir, to Coleman H. Dykes, 2122 Old Maryville Pike, Knoxville, Tenn., **$508,950.** Bids 9/20. CD 10/5, under LB.

Nebraska—Central Nebraska Public Power & Irrigation Dist., Hastings, hauling and placing stone as riprap on upstream slope of Kingsley Dam, to Missouri Valley Constr. Co., Omaha Natl. Bank, Omaha, **$85,000.**

†Texas—U. S. Eng. 606 Santa Fe Bldg., Galveston, foundation cut-off tests, Belton Dam and Reservoir, Lampasas River, CIVENG-6-243-50-45 Lot 1, to Russ Mitchell, Inc., 5304 Old Spanish Trail Rd., Houston, **$39,597.** CD 9/29, under LB.

Tex., Brownsville—United States Industrial Chemicals, Inc., Brownsville, fender house and timber fender dolphins, own forces, **$85,000.**

Tex., San Antonio—Cecil Stoker, 6447 W. Commerce St., site development, grading, drainage, own forces. Approx. **$55,000.**

†Utah—Bureau Reclamation, Dpt. Interior, Provo, earthwork, concrete lining and structures for South lateral, Station 0 plus 00 to 452 plus 00 Utah Lake Distributing Co. canal, Spec. R4 18 (Region 4), Provo River Proj., Deer Creek Div., to Sevier Excavating & Constr. Co., Richfield, **$52,062.** Bids 8/31, awarded 10/13. CD 8/23.

†Utah—Bureau Reclamation, Dpt. Interior, Salt Lake City, earthwork and canal lining for Marshall flume revision and protective fencing, Provo reservoir canal enlargement, Station 70 plus 65.08 to 100 plus 26.53, near Provo, Spec. R4-19 (Region 4), Provo River Proj., Deer Creek Div., to Thoboe & Wootton Constr. Co. Provo, **$49,932.** Bids 10/4, awarded 10/13. CD 9/13.

Alta., Taber—Prairie Game Rehabilitation Admin., McCallum Bldg., Regina, Sask., approx. 25 mi canals and laterals at Big Bend, north of here to Thode Constr. Co., c/o owner, Regina, Sask., Approx. **$62,983.** Bids 8/30.

Ont., Toronto—Dpt., P. Wks., Hunter Bldg., Ottawa, Ont., crib for Western Breakwater, harbor maintenances, to Russell Constr. Co., Ltd., Harbor Comrs. Bldg. Approx. **$34,738.** Bids 10/19. CD 9/30.

AIRPORTS AND AIRBASES

BIDS ASKED

November 10

Conn., Windsor Locks—LIGHTING SYSTEM —State of Connecticut, Raymond S. Thatcher, comptroller, State Capitol, Hartford, high intensity lighting equip., lighting sys., Proj. B/A-CC-29, Bradley Field. CD 11/19/48.

N. J., Newark—APRON PAVING—At office Chief Engr. The Port of New York Authority, 111 Eighth Ave., New York, 11, N. Y., apron paving and drainage at Newark Airport, Contr. NA-19. Plans deposit $25.

December 7

†N. Y., Rome—AIRPORT—U. S. Eng., 80 Lafayette St., New York, Zone 13, airport alterations.

LOW BIDDERS

Me., Portland — LOADING APRON — City, Office of Purch. Agt., City Hall, Oct. 17, exten. loading apron, etc., Municipal Airport, from W. H. Hinman, Inc., North Anson, $76,349. CD 10/18.

PUBLIC BUILDINGS

BIDS ASKED

November 9

●**Minn., Minneapolis**—CLASSROOM—University of Minn., R. S. Callaway, purch. agt., 323 Admin. Bldg., classroom bldg., Main Campus, $1,150,000. Plans deposit $25. C. H. Johnston, 715 Empire Bank Bldg., St. Paul, archt. 10/29/47.

November 10

†N. M., Las Cruces — HEADQUARTERS — U. S. Eng., Box 1538, Albuquerque, 2 story, 146x240 ft. 28,000 sq. ft. technical headquarters, steam heating, air-conditioning, Serial No. Eng-29-005-50-16. $675,000. CD 10/4.

About November 15

Tenn., Nashville—PHYSICAL EDUCATION—State of Tennessee, Nashville, physical educ. bldg. at Agricultural & Industrial State College, Centennial Blvd. $600,000. McKissick & McKissick, Morris Bldg., archts.

November 15

N. C., Yanceyville — SCHOOL — At office Supt. Pub. Instruction, Courthouse, Yanceyville, Cobb Memorial School for Bd. Educ., Caswell Co. Plans deposit $50 general, $35 mechanical. Lindsey M. Gudger, 62 Carter St., Asheville, archt.

S. C., Greenville—STEAM PLANT, etc.—Greenville General Hospital, c/o J. E. Sirrine Co., archt., 215 S. Main St., steam plant and laundry. Approx. $100,000. Extended date.

November 16

Ala., Tuscumbia—SERVICE—City, service bldg. for electrical department. Howard A. Griffith, Jr., State National Bank Bldg., Sheffield, archt.

Calif., San Francisco—POLICE STATION—Dpt. P. Wks., City Hall, Mission Police Station. Approx. $250,000. Plans deposit $25. J. Francis Ward & John S. Bolles, 369 Pine St., archts.

Kan., Emporia—LIBRARY—State, Topeka, William Allen White Memorial Library at Emporia State College. $850,000. Charles Marshall, Topeka, state archt.

Ont., Dunnville — HOSPITAL — B. Braum & Brisley, archts., 12 Bloor St. E., Toronto, 2 story, bsmnt., 62x160 ft., brick faced, tile backing, st[illegible] memorial hospital, concrete fdns., con[illegible] slab floors, for Haldimand Memorial Hospital Bd., E. Raney, secy., Dunnville, Ont. Approx. $250,000. CD 3/29/46.

November 17

Mass., Hull—HOUSES—Town of Hull Housing Auth., John W. Smith, chn., frame houses, Proj. 200-1. Plans deposit $50. CD 2/10.

November 18

La., Farmerville — SCHOOL — School Bd., Union Parish, high school, Smith & Padgett, Monroe, archts.

†Ohio—STORAGE—U. S. Property & Disbursing Officer for Ohio, Bldg. 101, Fort Hayes, Columbus, two 50x80 ft. motor vehicle storage bldgs., at Carnegie Ave. Armory, Cleveland; one 50x120 ft. motor vehicle storage bldg., at London; one 50x120 ft. motor vehicle storage bldg. at Wooster, all steel frame, concrete floor, pre-fabricated type constr.

November 21

Ia., Cedar Rapids—SCHOOL—Independent School Dist., Cedar Rapids, Buchanan School, $517,000. Childs & Smith, 20 N. Wacker Dr., Chicago, Ill., archts. CD 4/6.

November 22

Colo., Loveland—HOSPITAL—Loveland Memorial Hospital Assoc., Loveland, 40 bed hospital, $390,000. Roland L. Linde, 501 Insurance Bldg., Denver, archt. and engr. CD 5/20/48.

†Fla., Daytona Beach — BUILDING — P. Wks. Office, P. O. Box 365, Naval Base, Charleston, S. C., reconditioning, remodeling constr. existing bldg., 69x195 ft. addns., at Naval Reserve Training Center, incl. utilities, fencing the area, for Navy Dpt., NOY 19527, Spec. 23211. Plans deposit $10.

Fla., Miami—HOME—Dade Co., Miami, Juvenile Detention Home. Extended date. Robert Fitch Smith, Shoreland Bldg., archt. CD 10/6.

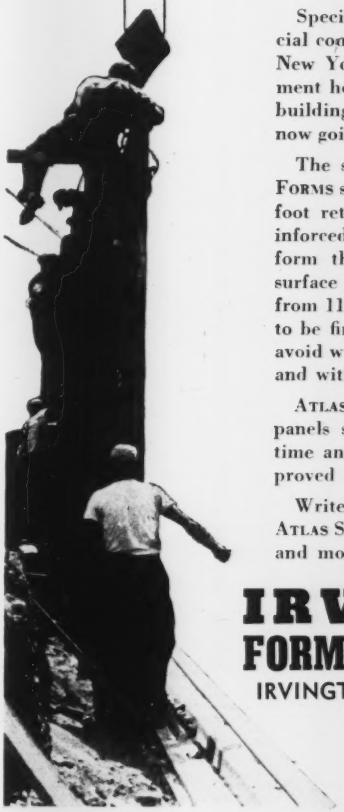
Minn., Crookston — BOILER UNITS—University of Minn., R. S. Callaway, purch. agt., 323 Admin. Bldg., Minneapolis, furnish, erect three 7,500 lb. steam per hr. boiler units, Northwest School and Station. $90,000. Plans deposit $20. Helmick, Edeskuty & Lutz, 405 Essex Bldg., Minneapolis, engrs.

N. C., Charlotte—SCHOOL—Mecklenburg Co. Bd. Educ., Courthouse, East High School, M. R. Marsh, 404 Chatham Bldg., archt. CD 5/1/46.

CORBETTA CONSTRUCTION CO. USED

Crane-Handled ATLAS SPEED FORMS *to Cut Costs* on Largest Concrete Apartment House in U. S.

Write us for additional construction details on this job



Special laws, special planning, special construction were needed for the New York Life's block-square apartment house . . . . a 19 story concrete building with huge subsurface garage now going up in New York.

The special problem ATLAS SPEED FORMS solved was constructing a 2,000 foot retaining wall of 16″ thick reinforced concrete around the block to form the outside wall of the subsurface garage. The wall, varying from 11 feet to 22 feet in height, had to be finished before normal time to avoid winter concrete operations . . . . and without increasing cost.

ATLAS 14′ by 16′ crane-handled panels solved the problem at great time and cost savings AND with improved appearance.

Write for information on how ATLAS SPEED FORMS can save you time and money.

IRVINGTON FORM & TANK CORP.

IRVINGTON NEW YORK

Tenn., Johnson City—PHYSICAL EDUCATION—East Tennessee State College, Johnson City, physical educ. bldg. Plans deposit $25. D R. Beeson, Johnson City, archt.

November 23

Md., Baltimore—SCHOOL—City, City Hall, 3 story, brick O'Donnell Heights School, Gracelland Park. $300,000. R. E. Williams, Bureau Bldg. Constr., 410 Municipal Bldg., consult. engr. CD 6/16.

November 28

Ark., Blytheville—HOUSING—Housing Auth. of City of Blytheville, P. O. Box 969, low-rent housing, Chickasaw Courts Proj. 5-1. Plans deposit $4. CD 10/30/45.

●**O., Columbus**—CHILDRENS HOME—Comrs. Franklin Co., Courthouse, cottage-type children's home on 85 acre farm at Gantz and Frank Rds. $1,250,000. Inscho, Brand & Inscho, 60 E. Broad St., archts. CD 7/9/47.

November 29

Fla., Lantana — SANATORIUM ADDNS., etc. — At office Director Construction Program, Delray Beach, heating plant, Proj. 6; furnishing mechanical equip. incl. plumbing and heating, Proj. 7; completing water treatment plant, Proj. 8; sewerage treatment plant, Proj. 10; sanitary and storm sewer collection and disposal system, Proj. 11; laundry, Proj. 13; residences for members, families and other personnel of State T. B. Board, Proj. 14, all foregoing at 400 bed TB Sanatorium for State Tuberculosis Board, 4 Seabreeze Ave., P. O. Box 1847, Delray Beach. Plans deposit $10 each project. Reynolds, Smith & Hills, 227 Park St., Jacksonville, Zone 1, archts. and engrs.

November 30

N. Y., New York—BUS TERMINAL—At office Chief Engineer Port of New York Auth., 111 Eighth Ave., Zone 11, terminal bldg. exclusive of steelwork and foundations for Port Authority Bus Terminal. Contr. BT-5. Plans deposit $100. CD 2/4/47.

About December 1

●**Ala., Birmingham**—COLLEGE—University of Alabama c/o Warren, Knight & Davis, archts., Protective Life Bldg., Birmingham, medical and dental college bldg. $1,500,000. CD 2/25/44.

Minn., St. Paul—HOME ECONOMICS—University of Minn., R. S. Callaway, purch. agt., 323 Admin. Bldg., Minneapolis, home economics bldg., $500,000. C. H. Johnston, 715 Empire Bank Bldg., archt CD 10/29/47.

December 13

†**Tenn., Oak Ridge**—DWELLINGS—U. S. Atomic Energy Comn., Oak Ridge, 450 multi-family dwelling units, in Neighborhood No. 11 Inv. No. 401-50-1A. Plans deposit $50.

About December 15

Kan., Onaga—SCHOOL—Bd. Educ., Onaga, high and grade school $275,000. Glover & Newcomb, 3101 Huntoon St., Topeka, archts. CD 9/21.

Ky., Owenton — HIGH SCHOOL — Owen Co., Owenton, high school. $250,000. Kennoy & Co., 223 N. Lime St., Lexington, archts. CD 10/20.

LOW BIDDERS

Conn., Middletown—SCHOOL—City, Supt. Schools, rejected bids May 16, 2 story, bsmnt., brick, steel, West Side School, L.B. **$295,000.** Will re-advertise. CD 5/19, under LB.

Kan., Arkansas City—HOSPITAL—City, City Hall, general contract city hospital, from Marshall-Kerr Constr. Co., Arkansas City, **$265,000.** CD 9/27.

Md., Owing Mills—DORMITORY, etc.—State of Md., Dpt. P. Imprvts., 209 W. Franklin St., Baltimore, brick, steel, rein.-con. Apartments, I & J and Dormitory Bldgs K & L Rosewood State Training School, from Mullan Constr. Co., 2945 Greenmount Ave., Baltimore, **$394,-000.** CD 10/6.

Mass., Boston — INFIRMARY—Commonwealth of Mass., Dpt. Mental Health, 100 Nashua St., Oct. 21, Proj. P-M38 infirmary and exten. tunnel and services, State School, Belchertown, from Vara Constr., Inc., 718 Huntington Ave., **$706,706.** CD 10/5.

Mass., Newburyport—HOUSING—City of Newburyport Housing Auth., City Hall, Oct. 14, 2 story, bsmnt., 39 unit, 2 and 4 family veterans residences, Storey Ave., from Conti & Donahue, 239 Commercial St., Lynn, **$386,170.** CD 10/5.

Minn., Grand Rapids—COURT HOUSE—Itasca Co., Oct. 13, general contract court house, from Klippen-Holm Co., 409 First National Bank Bldg., Duluth, **$522,437.** CD 10/5.

Minn., Madelia—SCHOOL—Bd. Educ., H. F. Zimmerman, clk., rejected bids Oct. 12, 2 story school addn., **$250,000.** Will re-advertise. Pass & Rockery, Mankato, archts.

†**Mo., Rolla** — EXPERIMENT STATION — General Services Admin., P. Bldgs. Admin., F. St. between 18 and 19 Sts. N. W., Wash., D. C., Oct. 20, reconstruction Bureau Mines Experiment Station, Proj. 23-104, from MacDonald Constr. Co., 3829 W. Pine Blvd., St. Louis, **$79,417.** CD 9/30.

New York—ELECTRICAL EQUIPMENT—Bd. Transportation, 250 Hudson St., New York, Oct. 14, electrical equip. for Brook St. Bus Garage, Richmond Boro, from Arc Electrical Constr. Co., Inc., 739 Second Ave., New York, Zone 16, **$215,840.**

N. Y., Geneva—HEATING PLANT—Bureau Contracts & Accounts, Albany, Oct. 19, general contract central heating plant for State Agricultural Experiment Station, from International Chimney Corp., Curtiss Bldg., Buffalo, **$389,300;** heating, from John W. Danforth Co., 70 Ellicott St., Buffalo, **$169,995.** CD 10/5.

●†**N. Y., Syracuse** — HOSPITAL—Veterans Admin., Vermont Ave. between H and I Sts. N. W., Wash. 25, D. C., Oct. 25, general contract Veterans Admin. Hospital, from John A. Johnson & Sons, Inc., 270 41 St., Brooklyn, **$7,146,000.** CD 8/30.

†**North Dakota**—TELEPHONE—U. S. Eng., Fort Lincoln, P. O. Box 300, Bismarck, received no bids Oct. 5, telephone bldg. extens., Missouri River, Garrison Dam and Reservoir, Riverdale, CIVENG-32-05-50-24. CD 9/26.

O., Indian Hill—HIGH SCHOOL—Bd. Educ., Indian Hill, Oct. 18, 2 story, bsmnt., 62x181 ft., brick, concrete elementary high school and gymnasium, from Dawson Evans Constr. Co., 5300 Vine St., St. Bernard, **$484,366.** CD 10/11

Tenn., Memphis—SCHOOL—Shelby Co. Bd. Educ., Memphis, Oct. 19, school, from Harmon Constr. Co., Wallace Bldg., Little Rock, Ark., **$314,000.** CD 8/23.

Tex., Hondo—HIGH SCHOOL—Hondo Independent School Dist., Hondo, Oct. 19, high school, from M. H. Ryland, Uvalde, **$251,000,** Charles Hule, Jr., 1905 Transit Tower, San Antonio, archt.

Tex., Houston—HIGH SCHOOL—Houston Independent School Dist., 1600 Washington St., Oct. 21, concrete, steel, brick, hollow tile, Lamar High School addn., and gymnasium, incl. remodeling, expanding existing bldg., from Le Blanc, Inc., 2518 Huldy St., **$578,752.** Est. $250,000. CD 9/23.

CONTRACTS AWARDED

Calif., Watsonville—VOCATIONAL CRAFTS—Watsonville Joint Union High School Dist., Watsonville, 4 recreational craft buildings at high school, to Leonard English, Rt. 2, Box 403, Santa Cruz, **$310,072.** Bids 10/19. CD 9/6.

Colo., Colorado Springs—ELECTRIC PLANT TOWER—City, City Hall, one 14,000 gpm induced draft cooling tower, municipal electric plant, to F. F. Pritchard & Sons, 308 Grand Ave., Kansas City, Mo., **$68,052.** Est. $68,000. Bids 9/23, awarded 10/13. CD 8/29.

Ia., Cedar Falls — POWER PLANT—City, City Hall, bldg. and mechanical work, power plant sys. and unit, to Winger Constr. Co., Ottumwa, **$208,428.** CD 9/9.

Kan., Kansas City—HOSPITAL—City, City Hall, general contract City Hospital addn., to Marshall-Kerr Constr. Co., 728 W. 7 St., Tulsa, Okla., **$289,791.**

Kan., Kansas City—CLINIC—University of Kansas Medical College, general contract Eaton Ward clinic corridor and clinic addns. at Kansas Medical Center, to J. E. Dunn Constr. Co., 929 Holmes St., Kansas City, Mo., **$367,379.** Bids 10/11. CD 10/19, under LB.

La., New Orleans—MUNICIPAL COURTS—City, City Hall, municipal courts bldg., separate contracts, **$370,000.** Curtis & Davis, 822 Perdido St., archts.

Mass., Foxboro — REAR CENTER and DINING HALL—Commonwealth of Mass., Dpt. Mental Health, 100 Nashua St., Boston, Sept. 9, P-M 31 rear center and dining hall, State Hospital, to John Capobianco, 44 School St., Boston, **$659,500.** Bids 9/9, awarded 10/14. CD 9/15, under LB.

N. Y., Bethpage — SCHOOL—Bd. Educ., Union Free School Dist. 21, Bethpage, school, to Joseph Bonfiglia & Son, Inc., 50 Oakland Ave., Harrison, **$825,978.** Bids 10/11. CD 10/3.

N. C., Charlotte—SCHOOL—Bd. School Comrs., J. M. Dunlap, bus. mgr., Charlotte, Park Rd. School, to Norman A. Smyth Co., 104½ S. Tryon St., **$255,793.** Bids 10/14. CD 9/27.

O., Chillicothe—SCHOOL—Bd. Educ., Chillicothe, Western School, to Knowlton Constr. Co., 106 N. Main St., Bellefontaine, **$379,500.** Bids 10/13. CD 10/7.

Okla., Stillwater—HOSPITAL—Payne Co., Stillwater, hospital addn., to Harmon Constr. Co., 1138 N. Shartel, Oklahoma City, **$325,200.** Phillip A. Wilbur & Assoc., Stillwater, archts.

Tenn., Dandridge—HIGH SCHOOL—Jefferson Co., high school, to Emery & Richards, 2117 N. Central St., Knoxville, **$256,565.** Bids 10/19. CD 9/26.

Tenn., Tiptonville and Ridgely—SCHOOL—Lake County School Bldg. Comn., Lake Co. Bd. Educ., Courthouse, schools at Tiptonville and Ridgely, to Gardner Constr. Co., 714 Allison St., Nashville, **$391,144.** Bids 10/19. CD 10/12.

Tex., Eldorado—SCHOOLS—Schleicher Co. Independent School Dist., Eldorado, high and elementary schools, repairing, remodeling school, to Von Frellick, Inc., P. O. Box 209, San Angelo, **$298,400.** Bids 10/19. CD 10/17.

Va., Arlington—SCHOOL—Arlington Co., Arlington, Water Reed School extens., remodeling, to E. L. Daniels, Arlington, **$386,-764.** Bids 10/7. John M. Walton & Assoc., 2030 16 St. N., archts. CD 10/14/48.

B. C., Burnaby—HIGH SCHOOL—Trustees School Dist. 41, 2800 McKay Ave., New Westminster, Junior High School, to Beaver Constr. Co., 1329 Connaught Dr., **$254,000.** CD 9/20.

Ont., Toronto—GARAGE, etc.—York Twp. Hydro-Electric System, Keele and Elora Sts., 2 story T-shaped, structural steel, 90x90 ft. truck garage, 43x55 ft. office section and 51x116 ft. warehouse, concrete floors, to Finley W. McLahlan, Ltd., 195 Fairbank Ave., Approx. $225,000. Bids 10/21. CD 9/30.

COMMERCIAL BUILDINGS

BIDS ASKED

November 8

Mass., Brockton — HOSPITAL — Brockton Hospital Co., A. S. Orr, pres., Center St., hospital addns., alterations and boiler plant, Center St. $800,000. Plans deposit $100. Curtin & Riley, 45 Newburgh St., Boston, archts. CD 8/16.

November 22

Mo., St. Louis—BUILDING—Central Institution for the Deaf, Dr. S. Richard Silverman, Ph.D. Director, 818 S. Kingshighway, Zone 10, (selected list of bidders), 5 story, bsmnt., rein.-con. brick, steel building incl. clinical quarters, research laboratories, etc., Papin St. east of Kingshighway Blvd. Approx. $400,000. Wm. B. Ittner, Inc., 408 Bd. Education Bldg., 911 Locust St., Zone 1, archt. CD 12/11/46.

November 29

Minn., Duluth—CHURCH—Zion Lutheran Church, Rev. O. M. Grimsby, 310 N. 25 Ave. W., Lincoln Park, 1 story, 89x128 ft. brick, stone church, 25 Ave. W. and Grand Ave., $400,000. J. V. Vanderbilt, 617 National Bldg., Minneapolis, archt.

●**Tex., Houston**—HOSPITAL—Arabia Temple Shrine, AAONMS, 1322 Prairie St., 8 story, bsmnt., 277 bed crippled children's hospital, $2,500,000. Alfred C. Finn, Bankers Mortgage Bldg., archt. Robert J. Cummins and Reg. T. Taylor, Bankers Mortgage Bldg., engrs. CD 9/13/46.

SOON LETS CONTRACT

●**Tex., Houston**—HOSPITAL, etc.—Methodist Hospital, 3929 San Jacinto St., soon lets contract 8 story, bsmnt., 300 bed reinforced steel frame, brick, stone, masonry general hospital (Texas Medical Center) partial air-conditioning, $3,500,000. Plans deposit $100; laundry, $75,000. Watkin, Nunn, McGinty & Phenix, 2017 W. Gray St., archts. Walter P. Moore, 4605 Montrose St., engr. Ray L. Jenkins, 4316 Blossom St., mechanical engr. CD 9/20.

LOW BIDDERS

Ark., Blytheville — SANCTUARY — First Methodist Church, Blytheville, 3 story, bsmnt. sanctuary, from Ben White & Son, Blytheville, **$305,000.** CD 9/13.

Ark., Hope — CHURCH — First Baptist Church, Hope, general contract church, from C & H Constr. Co., 821 Central St., Hot Springs ***plumbing and heating, from Harry W. Shiver, Hope***electrical work, from David Ray Electrical Co., 123 N. Victory St., Little Rock, Est **$250,000.** CD 10/6.

Colo., Denver — CLUB — Denver Athletic Club, 1325 Glenarm Pl., rejected bids on 8 story, 83x125 ft., bsmnt., steel, brick, tile and terra cotta, club, incl. existing bldg. remodeling, 10 bowling alleys, gym, locker rooms, etc. Approx. $250,000. Will re-advertise. Raymond H. Ervin, 616 Patterson Bldg., Denver, archt. and engr. CD 10/7.

Wis., Eau Claire—HOSPITAL—Luther Hospital, Eau Claire, Oct. 19, general contract, 3 story, bsmnt., 96x109 ft., concrete, brick, tile hospital addn., alterations, from Hoeppner-Bartlett Co., 631 E. Madion St., **$377,000.** CD 10/4.

Que., Verdun—CHURCH—Roman Catholic Parish of St. Thomas More, 980 Moffat Ave., Verdun, rejected bids Oct. 11, 1,000 seating capacity, rein.-con., steel church. Approx. **$500,000.** Will re-advertise. CD 10/4.

CONTRACTS AWARDED

Ala., Anniston—CHURCH—Parker Memorial Baptist Church, c/o contractor, church, to J. Holley, 905 6 Ave. N., Birmingham, Approx. **$250,000.**

Ala., Mobile—HOUSING—Murray Hill Homes, c/o contractor, 122 housing units, to Kimbrough Constr. Co., 22 St. Joseph St., **$307,000.**

Ala., Montgomery — HOMES — Academy Court, Inc., c/o contractor, 69 homes, to John T. Clarke, Farm Security Bldg., Approx. **$300,-000.**

Ala., Montgomery—APARTMENT DEVELOPMENT—Montgomery Real Estate Co., c/o contractor, apartment development, to Jack A. Roberts, 1320 N. 23 St., Birmingham, Approx. **$250,000.**

Ala., Montgomery—APARTMENT—Owner, c/o contractor, 60 apartment units, to Mac D. Saxon, 6 Cherry St., Approx. **$250,000.**

Ala., Tuskegee—APARTMENT UNITS—Mac D. Saxon, 6 Cherry St., Montgomery, 60 apartment units. Owner builds. Approx. **$250,000.**

Calif., Hayward—RESIDENCES—Valley & Lincoln, 1901 Foothill Blvd., San Leandro, 40 residences, San Miguel Ave. and Lewis St., Casa Valley Dist., near here. Owner builds. **$300,000.**

Calif., Los Angeles—DWELLINGS—Spring Heights, Inc., 6305 Orange Ave., Long Beach, 39 frame, stucco dwellings, Grandee and 139 Sts., to Biltmore Homes, 6305 Orange Ave., Long Beach. Approx. **$275,900.**

Calif., Norwalk — DWELLINGS — Sydmar Homes, Inc., 6305 Orange Ave., Long Beach, 214 frame, stucco dwellings Golber, Silver Bow, Brink, Avon Lea, Achrellis, Ives and Dante, Hermes, Alarka and Annabella Sts. Owner builds. **$985,900.**

Calif., San Fernando—DWELLINGS—Stuart Mortgage & Bldg. Co., 810 La Brea St., Los Angeles, 43 frame, stucco dwellings 4 St. and Pacopima Ave. Owner builds. **$300,000.** Southwest Drafting Service, 2724 W. Florence St., Los Angeles, archt.

Conn., Westport—SCHOOL—Church of Assumption, Rev. John H. Landry, pastor, 115 Riverside Ave., brick, steel parochial school, incl. 1 story, 65x120 ft. auditorium, 45x153 ft. 10 classrooms, kindergarten and 9 grades, Burr Ave., to Vuono Constr. Co., 217 Bedford St., Stamford, **$310,000.** Bids 9/26. CD 9/22.

Conn., Willimantic — HOUSES — Penwood Homes, Inc., 854 Main St., 45 one family 1½ story, frame houses, Hale Crest St. Owner builds. **$300,000.**

●**Conn., Windsor**—HOMES, etc.—Miskey-Munford Co., Park Acres, 125 addnl. single homes, brick, frame shopping center, Matianuckand Park Aves., Park Lane. Owner builds, **$1,300,000.**

Fla., Hialeah—HOMES—The Mackle Co., Inc., 2818 S. W. 22 St., Miami, 91 homes. Owner builds. **$455,000.**

Ga., Atlanta — APARTMENT DEVELOPMENT—Ardmore Circle Apartments Inc., 1800 Anjaco Rd. N.W., apartment development, to F. B. Bryant, c/o owner, Approx. **$250,000.** Gregson & Ellis, Mortgage Guarantee Bldg., archts. CD 9/29.

Ia., Waterloo—APARTMENTS—John G. Miller Constr. Co., 222 W. Mullan St., West View Apartments. Owner builds. **$600,000.**

Ky., Berea—DORMITORY—Berea College, Berea, womens dormitory, to Hargett Constr. Co., 113 Walton Ave., Lexington. **$272,630.** Bids 9/21. CD 9/14.

La., New Orleans—APARTMENTS—A. & O. Builders, 3207½ Metairie Rd., apartments. Owner builds. Approx. **$250,000.**

La., New Orleans—HOTEL—Owner, c/o contractor, hotel, to Design, Inc., 906 Sidney St., St. Louis, Mo., Approx. **$300,000.**

La., New Orleans—HOUSING—Schill-Wolfson Co., 2600 Poydras St., 40 houses. Owner builds. **$300,000.** CD 7/21.

●**Minn., Farmington** — HOUSING — Iversons, Inc., 7501 Nicollet Ave., Minneapolis, housing incl 350 dwellings, shopping center, etc. Owner builds. **$3,500,000.**

Miss., Jackson—APARTMENTS—Westchester Apts., Inc., 1235 Bailey Ave., apartments. Owner builds. **$300,000.**

Miss., Meridian—SHOPPING CENTER — Home Constr. Corp., Meridian, shopping center. Owner builds. Approx. **$250,000.**

N. Y., Douglaston—HOUSES—Douglaston Homes, Inc., c/o Schulman & Soloway, archts., 100-15 Queens Blvd., Forest Hills, 81 one family houses, 256 St., 58, 57 and 60 Aves., 255, 254 and 253 Sts. Owner builds. **$529,300.**

N. Y., Whitestone—HOUSES—Malba Gardens Homes, Inc., c/o A. H. Schwartz, archt., 37-60 82 St., Jackson Heights, 30 one family houses, 4 Ave., 147 St. and Whitestone Bridge approach. Owner builds. **$250,000.** CD 4/27.

Pa., Port Vue (McKeesport P. O.)—APARTMENT—Westwood Apartment Corp., 4 Terrace Rd., McKeesport, 2 story, bsmnt, T shaped, 38x264 ft., brick on hollow tile apartment, two 33x36 ft. wings, Washington Blvd. Owner builds. **$700,000.**

S. C., Spartanburg—DORMITORY—Wofford College, Spartanburg, dormitory, to Fiske-Carter Constr. Co., Spartanburg. Approx. **$250,000.** CD 9/12.

Tenn., Chattanooga—APARTMENT—Citico Apartments Corp., c/o contractor, 64 apartment units, to Vaughn Constr. Co., James Bldg. Approx. **$300,000.**

Tenn., Jackson—CLINIC—Jackson Clinic, c/o contractor, clinic, to L. & M. Constr. Co., 843 Vance Ave., Memphis. Approx. **$300,000.** CD 9/16.

Tenn., Memphis—HOMES—H. Dlugach & Co., 14 N. 2 St., 50 homes in Austin Peay sub-division. Owner builds. Approx. **$300,000.**

Tenn., Memphis—BUILDING—Young Women's Christian Assn., c/o contractor, Y.M.C.A. bldg., to S. & W. Constr. Co., Shrine Bldg. Approx. **$300,000.** Bids 9/1. CD 8/26.

Tenn., Nashville—SYNAGOGUE—West End Jewish Congregation, c/o contractor, synagogue, to Foster & Creighton Co., American Natl. Bank Bldg. Approx. **$250,000.** CD 9/25/47.

Tex., Beaumont — APARTMENTS — Hollywood Village Corp., c/o Robert W. Clemens, pres., 4110 Dennis St., Houston, 90 apartment units for total 20 separate bldgs., for Negroes, Hollywood Ave., own forces. Approx. **$450,000.** CD 10/6.

Tex., Dallas—DUPLEXES—O. J. Parrott & Assoc., Lawnvale and Scyene Rd., 50 duplexes, own forces. **$325,000.** CD 10/9/47.

Tex., Fort Worth—DWELLINGS—J. W. Lancaster, 3425 Denton Hy., 50 dwellings, own forces. Approx. **$450,000.** CD 10/20.

Tex., Garland—DWELLINGS—H. E. Enlow, 4751 Elsby St., Dallas, 25 dwellings. Owner builds. Approx. **$250,000.** CD 10/20.

●**Tex., Garland**—DWELLINGS—Trigg Bell, 1561 El Campo St., Dallas, 200 dwellings, own forces. Approx. **$1,200,000.** CD 10/20.

Tex., Houston — COMMUNITY CENTER — Fairworth Co., Inc., c/o Westview Terrace, 10 community center store units, own forces. **$350,000.** CD 9/16.

Tex., Houston—DWELLINGS—A. D. Filip, 6701 F. St. and L. L. Meineke, 4121 Polk St., 22 dwellings. Owner builds. Approx. **$250,000.** CD 9/30.

Tex., Houston—BANK, etc.—First National Bank, 210 Main St., remodeling, altering bank and office upper 6 floors, incl. new penthouse, to Claude K. Williams & Co. Inc., 1417 Westheimer St., **$328,000.** Bids 10/7. CD 9/26.

Tex., San Antonio—DWELLINGS—Lee & Ortz, Gunter Bldg., 120 dwellings. Owner builds. Approx. **$600,000.** CD 10/13.

Tex., San Antonio — HOUSING — Johnnie Chuoke, 109 Tuttle St., addnl. housing, Terrell Hills area. Owner builds. Approx. **$400,000.** CD 10/13.

Tex., San Antonio — DWELLINGS — Texas Development Co., Alamo Natl. Bldg., 32 dwellings, Purchase and Hire, Approx. **$250,000.** CD 10/13.

Ont., Hamilton—HOUSES—Bryers Constr Co., 61 E. 12 St., 30 houses, own forces, Approx. **$250,000.**

Ont., Ottawa—HOUSES—Geo. Dupuis, 160 Merviale Rd., 50 houses, in Nepeau Twp., southwest of here, day labor Approx. **$275,000.**

Que., Verdun — CHURCH — Parish of St. Thomas More, Bannantyne and Moffat Ave., 1,000 seating capacity rein.-con., steel church, to A. Janin & Co., Ltd., 1460 Sherbrooke St. W., Montreal. Approx. **$380,000.** CD 10/26.

INDUSTRIAL BUILDINGS

BIDS ASKED

November 9

Neb., Bellevue—POWER STATION—Loup River Public Power Dist., Columbus, power station exten., incl. substructure for Unit 3. Part of $2,000,000 addnl. proj. Sargent & Lundy, 140 S. Dearborn St., Chicago, Ill., engrs. CD 5/31.

November 14

Md., Baltimore—TRANSFER STATION—Delivery of Baltimore, Inc., 205 W. Centre St., (selected list bidders) 1 story, 263x277 ft., brick, cinder block, transfer station, Crout, Snyder & Crandall, 20 E. Lexington St., engrs.

November 28

Tex., Houston — SALES and SERVICE — Rosenstock Motors, Inc., 1120 McKinney St., 32,500 sq. ft. auto service, display. $300,000. R. S. Colley, 3204 Santa Fe St., Corpus Christi, archt. R. M. Shipman, 301 Parland Pl., San Antonio, engr CD 9/29

SOON LETS CONTRACT

Ill., Chicago—SIGN SHOP—Walgreen Co., A. A. Borg, constr. supt., 4300 W. Peterson St., soon lets contract 80,000 sq. ft. steel, brick, concrete sign shop. **$400,000.**

Neb., Franklin—SERVICE and SHOP—Franklin County Electric Membership Assn., Franklin, soon lets contract service and shop bldg. with offices in connection for rural power distr. assn. $55,000. W. Bouton, Hastings, archt. CD 5/9, under Unclassified.

Neb., Lincoln—PRINTING PLANT—State Journal Printing Co., c/o Davis & Wilson, archts., Stuart Bldg., soon lets contract 2 story, 99x142 ft. printing plant. CD 8/8.

N. Y., Long Island City—POWER PLANT—National Sugar Refining Co., 2-03 55 Ave., soon lets contract power plant addn.

●**Pa., Pittsburgh**—SERVICE—H. J. Heinz Co., 1062 Progress St., soon lets contract service bldg. alterations, addns., Progress St. $1,000,000. Skidmore, Owings & Merrill, 5 E. 57 St., New York, N. Y., archts. CD 10/13.

Tex., Houston—DAIRY PLANT—Foremost Dairies, Inc., 1706 Washington St., soon lets contract dairy plant. $275,000. H. K. Ferguson Co., M & M Bldg., archt. CD 8/8.

Ont., Barrie—FACTORY—Beck & Eadie, archts., 220 Bloor St. W., Toronto, soon lets contract 1 story, 75x300 ft. steel masonry agricultural park factory addn., for Canadian General Electric Co., Ltd., 212 King St., Toronto. Approx. $450,000.

LOW BIDDERS

S. C., Charleston—COFFEE PLANT—Wm. B. Reily & Co., Charleston, Oct. 17, coffee plant, from Charleston Constructors, Inc., Adgers Wharf, **$69,765.** A. E. Constantine, 139 Calhoun St., archt.

S. C., Clinton—STORAGE, etc.—Thornwell Orphanage, Clinton, Oct. 19, refrigerated storage, canning plant, etc., from Coulter & Co., 2921 Main St., Columbia, **$246,260.** CD 10/6.

CONTRACTS AWARDED

Ala., Birmingham—WAREHOUSE—Harris Transfer & Warehouse Co., c/o contractor, warehouse addn., to Ralph A. Smallman & Co., 1109 5 Ave. S., Approx. **$120,000.**

Ark., Dardanelle — MILL—Arkansas Valley Feed Mills, Dardanelle, rebuilding structures, day labor. **$75,000** with equip.

Conn., New Haven — OIL TERMINAL — T. A. D. Jones & Co., Waterfront St., oil terminal expansion, incl. storage tank, etc., 134 ft. diam., 25 ft. high, Waterfront St., to Bethelehem Steel Co., Eight and Lehigh Sts., Bethlehem, Pa., Approx. **$70,000.**

Fla., Jacksonville — BUILDINGS—National Container Corp., Talleyrand Ave., steel, concrete new recovery system building, to George D. Auchter Co., foot of E. 56 St., Jacksonville, Zone 1, **$175,000;** second precipitator bldg. for removal of dust and fumes from pulp mill waste, Owner builds, **$100,000.**

Fla., Miami—SERVICE, etc.—Florida Power & Light Co., Ingraham Bldg., 2 service and distribution buildings, to Edwards Constr. Co., 4203 Ponce De Leon Blvd., Coral Gables. Approx. **$75,000.** Bids 9/28. CD 9/29.

Fla., Tampa—STORAGE, etc.—Burroughs Adding Machine Co., c/o contractor, storage bldg. and office, to Paul Smith Contr. Co., 310 N. Rome Ave. Approx. **$125,000.**

Ga., Columbus—SHOP—Lummus Gin Co., 9 Ave. and 8 St., shop addns., to Murphy Pound Constr. Co., Hill Bldg., Approx. **$85,000.**

Ill., Aurora — PLANT — Oberweis Dairy Co., Molitor Ave., 1 story, bsmnt., 8,000 sq. ft milk bottling plant, to Lamp Constr. Co., 164 Division St., Elgin, **$78,000.** Awarded 10/14. Gray T. Lanz, 909 S. Batavia Rd., Geneva, archts.

Ill., Chicago—FACTORY—Kalish Supply Co., 4720 N. Kimball St., Zone 25, 1 story, 80x125 ft. steel, concrete, brick factory, to Poirot Constr. Co., 2001 W. Pershing Rd., Zone 9, **$80,000.** Awarded 10/18. A. Epstein & Sons Co., 2001 W Pershing Rd., Zone 9, archt.

Minn., Glencoe—PLANT—The Farmers & Merchants Milling Co., L. H. Patten, mgr., 45x56 ft., steel, concrete block soybean processing plant, 20 ft. high, to T. E. Ibberson Co., 300 Corn Exchange Bldg., Minneapolis, **$143,000.**

Mo., Maplewood (St. Louis, Zone 17, P. O.)—WAREHOUSE—Jos. H. White & Sons Development Co., 7815 Weaver St., 1 story, brick, concrete, steel, 24,000 sq. ft. Grove Laboratories, 2630-52 Pine St., St. Louis, Zone 3, lessee storage warehouse, own forces and separate contracts.

Okla., Blackwell—ZINC SMELTER—Blackwell Zinc Co., Blackwell, zinc smelter addn., force account. **$125,000.**

Okla., Hydro—GRAIN ELEVATOR—McNeill Grain Co., Hydro, 225,000 bu. grain elevator, to D. L. Walters, Professional Bldg., Amarillo, Tex. **$69,000.** Awarded 10/12.

Tex., Borger — WAREHOUSE, etc. — Rock Creek Carbon Plant, Borger, warehouse unit, **$78,000;** machine shop unit, **$90,000,** own forces. CD 8/30/48.

Tex., El Paso—REFINERY—Phelps-Dodge Corp., El Paso, remodeling, imprv. portions copper refinery, own forces **$175,000.** CD 8/19.

Tex., Houston—PLANT—Wm. Cameron & Co., Inc., 2600-10 Texas St., lumber and mill plant expansion; own forces. Approx. **$100,000.** CD 9/11/45.

Wis., Watertown—BOILER PLANT—Northwestern College, Watertown, general contract boiler plant, gymnasium addn., to Maas Bros. Constr. Co., Watertown***mechanical work, to O. Biefield Co., Watertown***electrical work, to V. & M. Electric Co., Menominee, Mich., Approx. **$500,000.** Bids 10/27. CD 9/8.

Alta., Edmonton—WAREHOUSE—Dominion Rubber Co., Ltd., 10131 103 St., 1 story, 84x199 ft., concrete warehouse and office, day labor, Approx. **$90,000.** CD 5/2.

Alta., Edmonton — WAREHOUSE — Steele, Briggs Seed Co., Ltd., 9665, 102 Avenue, Regina, archtsk., warehouse, to Robert H. Rae, Edmonton. Approx. **$75,000.** Mortland & Abberdeen, 108 Agency Bldg., archts.

Que., St. Jerome—PLANT—Laurentian Enterprises, Ltd., 1396 St. Catherine St. W., Montreal, 3 story, bsmnt., 60x275 ft. concrete block, U-shaped poultry plant, Laurentian hy. near here, own forces, Approx. **$200,000.** W. Lavallee, c/o owner, engr.

UNCLASSIFIED

BIDS ASKED

November 14

Tex., Corpus Christi—PARK IMPRVS.—Nueces Co., Courthouse, Park Proj. 3, on Padre Island, water lines, asph. road surf., fishing pier, guard, posts, etc. $115,000; Park Proj. 4, on Padre Island, comfort stations, fishing pier, playgrounds, service bldgs., garbage disposal units, etc. $120,000. L. R. Laurence, co. engr. CD 10/18, under LB.

November 15

†**Arkansas** — CEMETERY — U. S. Eng., 300 Broadway, Little Rock, removing and reburying 430 remains in 4 cemeteries to be flooded in Bull Shoals Dam area, Inv. No. CIVENG-03-050-50-38 and 39.

Nor. Carolina — PRISON CAMPS — State Hy. & Pub. Wks. Comn., c/o T. B. Gunter, bridge engr., Raleigh, prison camp, approx. 1 mi. of Shallotte, Brunswick Co., Approx. $50,000; prison camp, approx. 1 mi. northwest of Elizabethtown on U. S. 701, Bladen Co., Approx. $40,000. Plans deposit $25 each general constr., $10 each plumbing and electrical work. CD 3/18/48.

November 17

California—SIGNAL SYSTEMS, etc.—State Div. Hys., South Spring St., Los Angeles, traffic actuated signal system and hy. lighting on Firestone Blvd. from Woodruff to Bloomfield Aves., Los Angeles Co. G. T. McCoy, P. Wks. Bldg., Sacramento, state hy. engr.

Ill., Chicago—SIGNAL EQUIPMENT, etc.—City Dpt. Subways & Superhighways, 20 N. Wacker Dr., installing signal and interlocking equipment in Dearborn Street Subway. CD 4/26/45.

Ind., Indianapolis — BOILERS, etc. — J. A. Franklin, vice pres. Indiana University, Bloom-

ington, water tube steam boilers and chain or traveling grate stokers for power station at Indiana University Medical Center. Plans deposit $25. Ammerman, Davis & Stout, Inc., K of P Bldg., Indianapolis, engr. CD 4/14/48.

November 29

†Montana—TURBINES—Bureau Reclamation, Dpt. Interior, Bldg. 1A, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point or f.o.b. cars Louisville, three 23,500 hp. hydraulic turbines for Canyon Ferry Power Plant, Canyon Ferry Unit, Missouri River Basin Proj. Spec. 2814.

December 6

†Montana — OUTDOOR POWER TRANSFORMERS — Bureau Reclamation, Dpt. Interior, Bldg. 1 A, Denver Federal Center, Denver, Colo., 3 outdoor power transformers, Canyon Ferry Power Plant, Louisville, Missouri River Basin Proj., Spec. 2816. L. N. McClellan, ch. engr.

SOON LETS CONTRACT

Colo., Littleton—GRANDSTAND—Centennial Turf Club, c/o Roy D. Barnes, pres., E & C Bldg., Denver, soon lets contract superstructure steel grandstand for race track, Centennial Park. Henry A. Koch, Chamber of Commerce Bldg., Denver, archt. and engr. CD 3/30.

LOW BIDDERS

Calif., East Los Angeles — STADIUM — Los Angeles Bd. Educ., 1425 S. San Pedro St., Oct. 20, 449x773 ft., Stadium Bldg. A, East Los Angeles Junior College, from V. O. Brunzell Co., Box 432, Gardena, **$897,372**, Est. $853,000. CD 10/7.

†Colorado — TRANSMISSION LINES — Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Oct. 20, approx. 70 mi. Brush-Limon 115-kv transmission line, Colorado-Big Thompson Project, Spec. 2792, Schedule 1, aluminum conductor, from J & J Constr. Co., 1 Natl. Bldg., Oklahoma City, Okla., **$409,472**; Schedule 2, stranded copper conductor and Schedule 3, copper-welded-Copper conductor, from Walco Eng. & Constr. Co., 2408 S. 4 St., Tulsa, Okla., **$543,380** and **$586,376** respectively. CD 9/20.

Mass., Milton and Canton—SKI CENTER—Metropolitan Dist. Comn., Parks Div., 20 Somerset St., Boston, Oct. 20, Contr. 624, ski center, Big Blue Hill, northern slope, from J. F. White Constr. Co., 201 Alewife Brook Parkway, Cambridge, **$57,900**. Mrs. Sonja Loew, 435 Brush Hill Rd., Milton, lessee.

Minnesota—RURAL DISTRIBUTION LINES—Rural Co-operative Power Assn., Milaca, Oct. 18, 73 mi. rural distr. lines, etc., Minn., to Hennepin, from W. A. Patterson Co., 1816 Selby Ave., St. Paul, **$118,144**. CD 10/12.

Mont., White Sulphur Springs—SWIMMING POOL, etc. — White Sulphur Springs Corp., Oct. 10, general contract swimming pool and bathhouse, from Schye-Sullivan Co. & Messmer Co., Bozeman, **$71,137**. CD 9/13.

O., Columbus — UTILITIES TUNNELS — S. O. Linzell, dir. P. Wks., Ohio Dpts. Bldg., Columbus for Ohio State University, Columbus, utilities tunnels, from Struck Constr. Co., 147 N. Clay St., Louisville, Ky., **$65,000**. Bellman, Gillett & Richards, 518 Jefferson St., Toledo, archts.

Oregon—RURAL DISTRIBUTION LINES—Eastern Oregon Electric Co-operative, Inc., U. S. Natl. Bank Bldg., Pendleton, Oct. 17, 18 mi. rural distr. lines from Cayuse to Meacham, Unatilla Co., from Moffatt & Britton, Troutdale, **$57,582**. CD 9/30.

Texas—RURAL DISTRIBUTION LINES—Southwest Texas Electric Co-operative, Eldorado, Oct. 21, labor only 120 mi. rural distr. lines, Schleicher Co., from Willis & Hinders, Robert Lee, **$35,596**; materials by owner. Approx. **$78,000**, total $113,596. CD 10/17.

CONTRACTS AWARDED

†California — SWITCHYARD — Bureau Reclamation, Dpt. Interior, Tracy, Tracy Switchyard about 9 mi. N. W. of Tracy, Central Valley Proj., Spec. 2768, to Stolte, Inc. & Duncanson-Harrelson Co., 8451 San Leandro St., Oakland, and United Concrete Pipe Corp. and Ralph A. Bell, Box 425, Baldwin Park, **$978,720**. Bids 9/29, awarded 10/20. CD 10/5, under LB.

N. Y., New York — PLAYGROUND — Comr. Parks, Dpt. Parks, Arsenal Bldg., Central Park, 64 St. and 5 Ave., Zone 21, playground adjacent to Bronx River Houses, north of E. 147 St. from Ward to Manor Aves., Bronx Boro. Contr. No. X-G-10600-149, to Hank Constr. Corp., 209 E. 120 St., Zone 35, **$98,473**. Bids 9/13. CD 9/6.

North Dakota — RURAL DISTRIBUTION LINES — Minnkota Power Co-operative, Grand Forks, 44 mi. rural distr. lines, Grand Forks Co., to Delta Constr. Co., Clarksdale, Miss., **$109,000**. CD 11/19/48.

Tennessee—RURAL DISTRIBUTION LINES—Cumberland Electric Membership Corp., Clarksville, 210 mi. rural distr. lines, Stewart, Montgomery, Cheatham and Dickson Counties, to Utilities Constr. Co., 151 4 Ave., N. Nashville, **$254,878**. Bids 10/20. CD 10/6.

Tex., Dallas—GAS LINE—Lone Star Gas Co., 1915 Wood St., natural gas line extens., throughout city, **$200,000**; butane gas sys. extens., **$175,000**, force account. CD 5/1/47.

Tex., San Antonio — STREET LIGHTING SYSTEM—City Public Service Bd., 201 N. St. Marys St., Sect. 5, street lighting sys. unit, force account. **$150,000.**

Tex., San Antonio — GAS LINES — City Public Service Bd., 201 N. St. Marys St., 17,000 lin. ft. 8- to 12-in. natural gas lines, North Side, Approx. **$84,000**; 12,500 lin. ft. 8 in. natural gas lines, on South Side, Approx. **$65,000**, force account. CD 10/6.

Alta., Lethbridge—STOCKYARD EXTEN.—The Alberta Stock Yards Company, Ltd., Calgary, stockyard exten. to Bird Constr. Co., Ltd., 1321 Third Ave. S., Approx. **$100,000.**

PROPOSED PROJECTS

WATER SUPPLY

Kan., Russell—City, WW imprvs., incl. storage tank and main exten., **$225,000.**

N. H., Pembroke—Town, Water Dpt., Pembroke, WW sys. **$150,000.** Metcalf & Eddy, 1300 Statler Bldg., Boston, Mass., consult. engrs.

●O., Youngstown and Niles—Mahoning Valley Sanitary Dist., Mineral Ridge, construct 9 mi. pipeline between Meander and Berlin Reservoirs. **$3,868,000.**

●Tex., Houston—City, City Hall, 900 Brazos St., revised plans, San Jacinto Dam (drinking water usage) incl. filtration plant, concrete-lined canal, pump. stations, etc., **$20,000,000.** Horner & Shifrin, Shell Bldg., St. Louis, Mo., consult. engrs. CD 6/30/44.

●N. S., Dartmouth—Municipality, water service to 1600 housing units at Turfts Cove, **$1,000,000.** J. R. Kay Engineering Service Co., Ltd., Halifax, engr. J. Wafter Lahay, town engr.

SEWERS, WASTE DISPOSAL

●Calif., Bakersfield—City, sewage treatment plant, main sewers, outfall sewer, **$1,374,000.** Quinton Engineers, Ltd., 816 S. Figueroa St., Los Angeles, consult. engr. Joe Halfelder, city engr.

O., Lakewood—City, City Hall, 14532 Lake Ave., enlarging incinerator, 12920 Berea Rd. **$240,000.** C. L. Todd, 2313 E. Main St., Richmond, Ind., consult. engr. H. Bartell, c/o owner, engr. CD 3/6/44.

Que., Magog—Municipality, sewers, **$100,000.** Charles Lacarse, Magog, engr.

BRIDGES

O., Painesville—Comrs. Lake Co. Courthouse, election Nov. 8 on 2 mill levy, bridge program at Maple Grove Rd., Waite Hill Rd., etc. **$660,000.** R. M. Plumer, c/o owner, engr. CD 8/19/48.

Ont., Toronto—Municipality, bridge Queen St. at Sunnyside, **$895,916.** Murray Stewart, city engr.

STREETS AND ROADS

Kan., Russell—City, street imprvs. **$305,000.**

Neb., Broken Bow — City, street imprvs. **$112,918.**

EARTHWORK, WATERWAYS

●Illinois—State Division Waterways, Springfield, Ill., has retained Horner & Shifrin, consult. engrs., Shell Bldg., St. Louis, Mo. to make hydraulic studies and formulate development plan for Hillside Diversion Flood Control Project, near East St. Louis, Ill., Madison and St. Clair Counties. **$16,000,000.**

AIRPORTS AND AIRBASES

Tex., Lamesa — AIRPORT — Dawson Co., Courthouse Bldg., $105,000 bond election Nov. 8, airport. **$210,000.**

Man., Flin Flon—AIRPORT—Government of Canada, Hunter Bldg., Ottawa, Ont., three runway airport. Approx. **$100,000.** Dpt. Transport, Ottawa, Ont., engr.

LATIN AMERICA

Brazil, Sao Paulo—Comptoir des Phosphates de L-afrique du, Nord, Sao Paulo, plans superphospate factory. Approx. **$500,000.**

Colombia, Paz de Rio—National Railways, Bogata, plans railroad from Corrales to Paz de Rio. **$700,000.**

Costa Rica, Alaquela — Republic of Costa Rica, San Jose, plans international airport. **$2,000,000.**

Mexico, El Tulillo—Cia DYSCA, San Juan de Letran, 100 sexto piso, Mexico, D. F., Mexico, plans agricultural center. **$36,500,000.**

Mexico, Mexico City—Luis Prado and Gaspar Rivera, Lopez, 1-507, Mexico, D. F., plans plastic optical apparatus holders factory. **$250,000.**

Mexico, Mexico City—National Railways of Mexico, Bolivar, 19, Mexico, D. F., Mexico, plans diesel locomotive repair shop. **$270,000.**

Mexico, Progreso—Mexican Govt., Sria. de Hacienda (Ministry of Finance), Mexico, D. F., plans customs house and examination sects. **$500,000.**

Mexico, Tampico—Charles Miller, Jr., La-Empacadora, S. A., Tampico, Tamps. plans increased refrigeration and store rooms for meat packing house. **$580,000.**

Trinidad, Port of Spain—Govt. of Trinidad, Port of Spain, plans slum clearance and housing. **$1,000,000.** Colonial Development Bd., London, England, engr.

PUBLIC BUILDINGS

Ala., Cullman — HOUSING — City, c/o Chamber of Commerce, 100 housing units, **$600,000.**

Ala., Montgomery—HOUSING—Montgomery Housing Auth., Montgomery, 1,300 housing units. Approx. **$250,000.**

Ark., Earle—SCHOOL—Earle School Bd., Earle, plans by Robert Ghomas Martin, Baltimore Bldg., Memphis, Tenn., school. Approx. **$250,000** with equip.

Ark., Little Rock—PHYSICAL EDUCATION—Little Rock School Bd., 8 and Louisiana Sts., plans by Wittenberg, Delony & Davidson, Pyramid Bldg., physical education bldg. for Little Rock High School. **$304,000.**

Ark., Little Rock—OFFICE—State Board Fiscal Control, State Capitol, plans by Bruggeman, Swaim & Allen, Gazette Bldg., Little Rock, office for State Welfare Dpt. **$650,000.** CD 3/11.

Calif., Monrovia—SCHOOL—Monrovia City School Dist., voted bonds, school, **$350,000.** Wm. Ainley, 999 Wildrose Ave., archt. CD 9/29.

Colo., Buena Vista—CELLS, etc.—State of Colorado, Colorado State Reformatory, Buena Vista, plans by W. Gordon Jamieson, archt. and engr., 818 12 St., Denver, 47 new cells and admin. offices for warden and staff, **$300,000.**

Colo., Colorado Springs—FIRE STATIONS—City, City Hall, plans by Earle A. Deits, archt. and engr., 413 Mining Exchange Bldg., Colorado Springs, 2 fire stations, 1 on Limit St. and West Colorado Ave. and other on Hancock and East Pikes Peak Ave. **$909,000.** CD 4/9/46.

Conn., Hamden—SCHOOL—Town, Bd. Educ., Hamden, plans by Henry S. Kelly, 282 York St., New Haven, 2 story, bsmnt., brick, steel Dunbar Hill School, Banham St. **$450,000.** CD 1/29/47.

●Conn., New Haven—HOUSING—New Haven Housing Auth., 195 Church St., 300 family unit housing. **$2,500,000.**

●Conn., Waterbury — HOUSING — Waterbury Housing Auth., 24 Warner St., housing, incl. 400 family units. **$3,000,000.**

Fla., Lakeland—HOUSING—Lakeland Housing Auth., Lakeland, 220 housing units. Approx. **$250,000.**

Ga., Rome — HOUSING — Rome Housing Auth., Rome, 250 housing units. Approx. **$250,000.**

Ga., Savannah—HOUSING—Savannah Housing Auth., Savannah, 480 housing units. Approx. **$250,000.**

Idaho, Pocatello—HOSPITAL—Bannock Co., Pocatello, voted bonds, hospital, **$550,000.**

●Ind., Anderson—SCHOOLS—City, c/o Arch Chadd, supt. Schools, 1301 Lincoln St., plans by Miller & Henning, Anderson Bank Bldg., school, 29 St. **$800,000**; school, 22 and Dewey Sts., **$400,000.** CD 1/29/43.

Ind., Greencastle—ARMORY—State of Indiana, Indiana National Guard, c/o P. Wks. & Supply Division, 404 State House, 1 and 2 story, brick, stone, rein.-con., structural steel armory. **$250,000.**

Ind., Terre Haute—STUDENT UNION, etc.—Dr. Ford L. Wilkinson, Jr., pres., Rose Polytechnic Institute, R. R. 5, East Natl. Rd., plans by Miller & Vrydaugh, 201 Opera House Blk., Terra Hault, and McGuire & Shook, Fletcher Trust Bldg., Indianapolis, student union bldg., **$250,000**; college heating plant, **$100,000.**

Kan., Salina—HIGH SCHOOL—Bd. Educ., Salina, **$875,000** bond election Nov. 15, high school, J. W. Radotinsky, 1401 Fairfax Trafficway, Kansas City, Kan., archt. CD 4/17/47.

Ky., Independence — SCHOOL — Kenton Co. Educ. Bd., J. Lay Caywood, supt., plans by H. Richard Elliston, 9 and Main Sts., Cincinnati, O., 2 and 3 story, bsmnt., 73x116 ft. x 267 ft. brick, concrete Taylor Mill School. **$610,000.** Manley & Young, 128 E. 6 St., Cincinnati, O., consult. engrs.

●La., Alexandria—SCHOOL—City, **$1,800,000.** bond election Nov. 29, school building program.

●La., Marksville — SCHOOL — Avoyelles Parish School Bd., Marksville, **$1,500,000** bond election Nov. 15, school imprvs.

La., Monroe—HOUSING—Monroe Housing Auth., 400 housing units. Approx. **$250,000.**

La., Shreveport—HOUSING—City, City Hall, plans by Neild & Somdal, City Bank Bldg., numerous housing units, **$250,000.**

●Mass., Waltham—HOUSING—City of Waltham Housing Auth., City Hall, plans by Aldo A. Minotti, 681 Main St., 100 unit housing, Lexington St., Approx. **$1,000,000.**

Miss., Laurel—HOUSING—Laurel Housing Auth., 600 housing units. Approx. **$250,000.**

Miss., McComb—HOUSING—McComb Housing Auth., 275 housing units, Approx. **$250,000.**

Neb., Imperial—SCHOOL—Chase Co. Bd. Educ., Imperial, voted bonds, school enlargement. **$330,000.**

N. C., Jefferson—HOSPITAL—Ashe Co., Jefferson, plans by Lindsey M. Gudger, 52 Carter St., Asheville, hospital. **$300,000.**

N. C., Wilmington — HOUSING — Wilmington Housing Auth., B. H. Marshall, dir., Wilmington, 400 housing units. Approx. **$250,000.**

●**O., Lorain** — HOUSING — Metropolitan Housing Auth., City Hall, housing, incl. 650 housing units. **$5,000,000.** Lewis Goodell, city engr.

Okla., Durant — HOSPITAL — Bryan Co., Durant, hospital. **$300,000.**

Pa., Dixmont — LAUNDRY—Dpt. Property & Supplies, Harrisburg, plans by John M. Rice, Century Bldg., Pittsburgh, laundry at Dixmont State Hospital. **$300,000.**

Tenn., Chattanooga — HOUSING — Chattanooga Housing Auth., M. C. Poss, chn., 2600 4 Ave., 1,200 housing units. Approx. **$250,000.**

Tenn., Jackson — HOUSING — Jackson Housing Auth., Jackson, 425 housing units. Approx. **$250,000.**

Tenn., Knoxville—SCHOOL—City, Knoxville, Rule Junior-Senior High School addn., alterations, plans by Edwin A. Keeble, Knoxville. CD 1/27/47.

●**Tex., McAllen**—HOUSING—McAllen Housing Auth., c/o W. H. Whalen, chn., McAllen, plans by Boese & Harkrider, 423 N. Main St., Fort Worth, and Zebe Rike, McAllen, assoc. engrs. and archts., 150 urban low-rent housing units. **$1,125,000.**

●**Tex., San Antonio**—HOUSING—San Antonio Housing Auth., Wm. Sinkin, chn., 419 S. St. Marys St., 1st year, 1,500 low rent housing units, **$10,000,000;** 2nd year, 1,500 low rent housing units, **$10,000,000.** CD 2/4/44.

Va., Danville — HOUSING — Danville Redevelopment and Housing Auth., Hosea E. Wilson, chn., Danville, 750 housing units. Approx. **$250,000.** CD 8/27/46.

Va., Petersburg—POWER PLANT—State of Virginia, Richmond, power plant at Central State Hospital for Negro mentally ill patients, water treatment plant and sewer line included. **$496,839.**

Ont., Aurora—SCHOOL—Aurora High School Dist. Bd., Miss L. Lore, secy., plans by S. B. Coon & Son, 4 St. Thomas St., Toronto, 2 story high school, Dunning Ave., Approx. **$425,000.** CD 12/16/46.

●**Ont., Owen Sound**—INSTITUTE—Bd. Educ., A. G. Rutherford, secy., plans by J. Layng, 170 Bloor St. W., Toronto, collegiate and vocational institute in Victoria Park, Approx. **$1,140,000.**

Que., St. Laurent—SCHOOL—School Com., L. Deguire, secy., St. Laurent Ave., plans by A. Martineau, 200 Bay St., Ottawa, Ont., 2 story, bsmnt., 60x115 ft., brick, block stone, rein.-con. school, concrete fdns. Blvd. Decarie. Approx. **$300,000.**

COMMERCIAL BUILDINGS

●**Calif., San Francisco** — BANK — American Trust Co., 646 California St., plans by Harry A. Thomsen Jr & Aleck L. Wilson, 315 Montgomery St., San Francisco, 10 story, steel, concrete bank addn. **$2,500,000.**

Ind., Indianapolis—APARTMENTS—Leo & Maurice Lippman, 2219 N. Arlington Ave., plans by L. Byfield, 201 E. 13 St., 5 story, brick, rein.-con., structural steel apartment, 35 and Meridian St. **$750,000.**

●**La., Scotlandville** — COLLEGE — Southern University, Felton G. Clark, pres., 12 college bdigs., incl. law bldg. **$350,000,** agricultural science bldg. **$800,000,** men's dorm **$1,500,000,** women's dormitory **$400,000,** physical educ. bldg. **$800,000,** fine arts center **$600,000,** educ. bldg. **$750,000,** home economics bldg. **$575,000,** auditorium **$750,000,** student center **$500,000,** laundry **$175,000,** faculty apartment **$250,00.**

Nev., Reno — OFFICE, etc. —The Dodd Estate, Reno, plans by W. T. Lanning, 274 S. Virginia St., 4 story bsmnt., Type I, 95x110 ft. structural steel, concrete, office and store. Approx. **$250,000.** Hyman Rosenthal, 617 Montgomery St., San Francisco, Calif., consult. engr.

●**O., Dayton**—BUILDINGS—Dayton University, Rev. George J. Renneker, pres., 300 College Pk. 15 bldgs. for Dayton University. **$15,000,000.**

Va., Norfolk — HOMES — Regal Homes, Inc., c/o Alfred M. Lublin, archt., 700 Front St., 300 homes. Approx. **$250,000.**

Que., Jonquiere—HOTEL—Syndicate, c/o J. A. Tremblay, Chamber of Commerce, hotel, **$750,000.**

INDUSTRIAL BUILDINGS

Tenn., Bristol — GARAGE — Bristol Parking, Inc., David Weinstein, pres., Bristol, auto parking garage. **$150,000-$200,000.**

Que., Montreal—PLANT—Cockshutt, Plow Co. Ltd., 66 Mohawk St., Brantford, plant, Cote de Lierse Rd. Approx. **$150,000.**

UNCLASSIFIED

Pennsylvania—GAS PIPELINE—Harrisburg Gas Co., 14 S. 2 St., Harrisburg, 18 mi. natural gas pipeline from Maytown, Lancaster Co. to Harrisburg, Dauphin Co. **$453,000.**

Texas—RURAL DISTRIBUTION LINES—Patricio Electric Co-operative, Sinton, rural distr. lines, San Patricio Co. **$350,000.** CD 7/31/46.

Proposal Advertisements see pp. 83 to 85

OFFICIAL PROPOSALS

Bids: November 28, 1949 (423)

Miscellaneous Construction

THE DELAWARE RIVER JOINT COMMISSION
BRIDGE PLAZA
Camden, N. J.

Sealed bids will be received at the office of the Secretary of The Delaware River Joint Commission, Administration Building, Bridge Plaza, Camden, New Jersey, until 1:30 P. M. (Eastern Standard Time), Monday, November 28, 1949 and then and there will be publicly opened and read embracing the contracts described below.

A more complete description of the work and full information for bidders are given in the contract documents and specifications which may be obtained upon a deposit of $10.00 (for each contract) which will be remitted upon receipt of bid or the return in good condition of the copies so taken within thirty days after the opening of bids.

Each proposal must be accompanied by a certified or cashier's check payable to The Delaware River Joint Commission and drawn upon a national or state bank or trust company having an office either in Philadelphia, Pennsylvania or Camden, New Jersey and surety's consent must be shown on Contracts 6, 8 and 9. The bidder to whom Contract 6, 8 or 9 is awarded will be required to furnish a performance and labor and materialmen's bond in the sum of 100 percent.

Contract No. 6—"Structural Materials for Reconstruction of Existing Expansion Dams on the Philadelphia and Camden Approaches"
Check to accompany bid on Contract No. 6—*$3,000.*

Contract No. 8—"New Traffic Lane Signal System and Miscellaneous Electrical Work"
Check to accompany bid on Contract No. 8—*$20,000.*

Contract No. 9—"New Traffic Lane Marker Structures"
Check to accompany bid on Contract No. 9—*$10,000.*

"Furnishing Pipe, Fittings, Specialties and Sundries for Dry Standpipes"
Check to accompany this bid—*$250.*

The Commission will afford prospective bidders an opportunity to inspect the work to be done.

The right is reserved to reject any or all bids.

THE DELAWARE RIVER JOINT COMMISSION
JOSEPH K. COSTELLO,
SECRETARY.

Bids: November 17, 1949 (419)

Construction of Route 44

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

ROUTE 44, SECTIONS 11 & 14

Construction of Route 44, Secs. 11 & 14, from Pierces Corner to Berkley Road, Grading & Drainage, W. Deptford Township, Borough of Paulsboro, and E. Greenwich Township, Gloucester County, Federal Project F-122(7). Length 4.3 mi.

Alternative "A"

Estimated:
139,300 cu. yds. Roadway Excavation-Earth
408,000 cu. yds. Wet Excavation
1,125,800 cu. yds. Borrow Excavation

Alternative "B"

139,300 cu. yds. Roadway Excavation-Earth
146,200 cu. yds. Wet Excavation
902,200 cu. yds. Borrow Excavation
29,800 cu. yds. Sand Blanket
108,900 lin. ft. Vertical Sand Drains

Alternative "C"

139,300 cu. yds. Roadway Excavation-Earth
208,500 cu. yds. Wet Excavation
943,000 cu. yds. Borrow Excavation
14,800 cu. yds. Sand Blanket
85,300 lin. ft. Vertical Sand Drains

Alternative "D"

139,300 cu. yds. Roadway Excavation-Earth
345,700 cu. yds. Wet Excavation
1,085,000 cu. yds. Borrow Excavation
15,000 cu. yds. Sand Blanket
23,600 lin. ft. Vertical Sand Drains

(NOTE: Bidders may submit bids on any one of Alternatives "A", "B", "C" or "D").

Bids for the above will be received at the office of the State Highway Department, Room 102, State House Annex, Trenton, N. J., on Thursday, November 17, 1949 at eleven o'clock (11:00 A.M.—EASTERN STANDARD TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

NOTE: The proposed project is a "Federal Aid Project" authorized by the provisions of Title 27 of the Revised Statutes of New Jersey and supplements, and by Section 1, Public Laws 834, 80th Congress, and is to be performed in accordance with the special provisions and requirements of the Bureau of Public Roads, Department of Commerce, as outlined in the specifications, which provisions require that labor be employed from lists furnished by the State Employment Service, 21 Delaware St., Woodbury, N. J. The attention of bidders is directed to the special provisions covering subletting or assigning the contract. The minimum wage paid to all unskilled labor employed on this contract shall be 65¢ per hour. The minimum wage paid to all intermediate grade of labor employed on this contract shall be 75¢ per hour. The minimum wage paid to all skilled labor employed on this contract shall be $1.25 per hour.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 102, State House Annex, Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $2,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: Spencer Miller, Jr.
State Highway Commissioner

Bids: December 9, 1949 (422)

Sewage Treatment Plant

Waterbury, Connecticut

Sealed proposals for the construction of 15 M.G.D. sewage treatment plant will be received by the Board of Public Works of the City of Waterbury, at its office in the City Hall until 8:00 o'clock P. M., Eastern Standard Time, Wednesday, December 9, 1949, at which time they will be publicly opened and read.

The work to be done consists of the construction of a screen and grit chamber with superstructure and attached garage, a pump and service building, three primary settling tanks, a sludge filter building, sludge storage tanks with superstructure, a chlorine building and attached service garage, and furnishing and installing miscellaneous connections, piping, equipment and electrical work.

Plans, contract, and specifications may be obtained after November 8, 1949 by intending bidders applying at the office of the Bureau of Engineering, City Hall, Waterbury, Connecticut or at the office of Malcolm Pirnie Engineers, 25 West 43rd Street, New York, N. Y., on deposit of twenty-five dollars ($25.00), which sum will be refunded upon return of plans and specifications in good condition within ten (10) days after award of contract.

OFFICE OF BUREAU OF ENGINEERING
WATERBURY, CONNECTICUT
Henry C. Whitlock,
City Engineer

OFFICIAL PROPOSALS
(Continued from page 83)

Bids: November 10, 1949 (415)

Elevated Water Storage Tank

NOTICE TO CONTRACTORS

Montgomery County, State of Ohio, through its Board of County Commissioners, will receive sealed proposals for the construction of

A 1,000,000 GALLON ELEVATED WATER STORAGE TANK, LOCATED IN VAN BUREN TOWNSHIP

until 10:00 o'clock A.M., Eastern Standard Time on Thursday, November 10, 1949, at the office of the County Commissioners of Montgomery County, Ohio; at which time and place they will be publicly opened and read aloud.

Copies of the Plans and Specifications, the estimated quantities of the items of work, the proposal and contract forms, are on file in the office of the County Sanitary Engineer, Room 5, Court House, Dayton, Ohio, where they may be obtained upon the payment of a deposit of Five Dollars ($5.00) which will be returned to the bidder after the receipt of the bids.

Each proposal shall be signed by the full name and business address of each person or company interested in the same; shall be accompanied by a surety bond by a bonding company authorized to do business in the State of Ohio, or by a certified check on some solvent bank within Montgomery County, in the amount of five per cent (5%) of the amount of the submitted proposal, the surety bond being payable to the Board of County Commissioners, Montgomery County, Ohio, and certified checks payable to the Auditor of Montgomery County, Ohio; as a guarantee that if the proposal is accepted, a contract will be entered into and its performance properly secured by a satisfactory bond in the amount of one hundred per cent (100%) of the contract price.

The proposals must be made on the forms provided therefor in the contract documents, or a copy thereof, with a unit price quoted for each item of work; the price of labor and materials to be separately stated.

The Board of County Commissioners reserves the right to accept or reject any or all proposals; to waive any informalities in the bidding; and to enter into a contract with the bidder who in their consideration offered the lowest and best proposal.

By order of the Board of County Commissioners of Montgomery County, Ohio.

JESSIE B. GANO,
Clerk

Bids: November 7, 1949 (405)

Clearing Rondout Reservoir

CONTRACT 345

SEALED BIDS will be received by the Board of Water Supply, at its offices, thirteenth floor, 120 Wall street, New York City, until 11:00 A.M., Eastern Standard Time, on Monday, November 7, 1949, for Contract 345, for clearing approximately 900 acres below Elevation 760 in the lower portion of the Rondout reservoir in preparation for the storage of water, all as set forth in the specifications. The Rondout reservoir is located in the Towns of Wawarsing, Ulster county, and Neversink, Sullivan county, New York.

No bid will be received and deposited unless accompanied by a certified check upon a National or State bank, drawn and made payable to the order of the Comptroller of The City of New York in the amount of fifteen thousand dollars, ($15,000.00), for the proper execution of the contract.

At the above place and time the bids will be publicly opened and read. Pamphlets containing information for bidders, forms of bid and contract, specifications, contract drawings, requirements as to surety, etc., can be obtained at the office of the Chief Engineer, Room 1311, at the above address, upon application in person or by mail, by depositing the sum of five dollars ($5.00) in cash or its equivalent for each pamphlet. Within 30 days following the award of contract or rejection of bids, the full amount of such deposit will be refunded for each pamphlet submitted as a bid and a refund of four dollars ($4.00) will be made for each other pamphlet returned in acceptable condition. Arrangements will be made whereby prospective bidders desiring blueprints of the contract drawings for their own use may secure same, the cost thereof to be paid by them. For further particulars, apply at the office of the Chief Engineer at the above address.

IRVING V. A. HUIE, President, HENRY HESTERBERG, RUFUS E. McGAHEN, Commissioners, Board of Water Supply; RICHARD H. BURKE, Secretary.

OFFICIAL PROPOSALS

Bids: November 14, 1949 (418)

WASHINGTON SUBURBAN SANITARY COMMISSION
CONTRACT NO. 695-W
WATER MAIN CONSTRUCTION

Sealed proposals for constructing approximately 28,800 feet of 20-inch to 42-inch supply line from Columbia Pike near Paint Branch to Wheaton, Montgomery County, Maryland, will be received at the office of the Washington Suburban Sanitary Commission, Hamilton Street, Hyattsville, Maryland, until Monday, November 14, 1949 at 1:00 P.M., Eastern Standard Time, at which place and time they will be publicly opened and read. Alternate bids are asked on cast iron, steel, reinforced concrete, prestressed, and reinforced concrete cylinder pipe.

Plans and specifications may be obtained from the office of the Chief Engineer of the Commission, Hyattsville, Maryland upon deposit of $10.00, which deposit will be returned to bidders or to those returning plans and specifications in good condition.

Dwight E. Galt
Warren Browning
Leland G. Worthington
Commissioners

Bids: November 17, 1949 (420)

Construction of Route 25

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

ROUTE 25, SECTION 34H

Construction of Route 25, Section 34H, from Skyway to Delancy Street, Partial Widening and Resurfacing South Bound Roadways, City of Newark, Essex County, Federal Aid Project UI-185(11). Length 1.6 miles.

ROADWAY ITEMS

Estimated:
- 7,000 cu. yds. Roadway Excavation-Earth
- 10,000 sq. yds. Removal of Granite Block Pavement
- 4,000 sq. yds. Reinforced Concrete Pavement Surface
- 5,000 sq. yds. Reset Granite Block Pavement

BRIDGE ITEMS

Estimated:
- 28,850 sq. ft. Steel Sheet Piles
- 91,000 lbs. Structural Steel
- 106 cu. yds. Concrete in Structures
- 14,600 lbs. Reinforcement Steel in Structures
- 1,550 lin. ft. Removal Steel Expansion Joints

Bids for the above will be received at the office of the State Highway Department, Room 102, State House Annex, Trenton, N. J., on Thursday, November 17, 1949, at eleven o'clock (11:00 A. M.—EASTERN STANDARD TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

NOTE: The proposed project is a "Federal Aid Project" authorized by the provisions of Title 27 of the Revised Statutes of New Jersey and supplements and by Section 1, Public Laws 834, 80th Congress, and is to be performed in accordance with the special provisions and requirements of the Bureau of Public Roads, Department of Commerce, as outlined in the specifications, which provisions require that labor be employed from lists furnished by the State Employment Service, 303 West Washington Street, Newark, N. J. The attention of bidders is directed to the special provisions covering subletting or assigning the contract. The minimum wage paid to all unskilled labor employed on this contract shall be 65¢ per hour. The minimum wage paid to all intermediate grade of labor employed on this contract shall be 75¢ per hour. The minimum wage paid to all skilled labor employed on this contract shall be $1.25 per hour.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective biders during office hours. Plans will by furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 102, State House Annex, Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be les than $500.00 nor more than $20,000,000 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: Spencer Miller, Jr.
State Highway Commissioner

OFFICIAL PROPOSALS

Bids: November 3, 1949 (417)

Construction of a 20" Pipe Line

COMMONWEALTH OF MASSACHUSETTS
METROPOLITAN DISTRICT COMMISSION

Sealed proposals will be received at the office of the Metropolitan District Commission, 20 Somerset Street, Boston, Mass., until 1:00 P.M., Eastern Standard Time, Tuesday, November 22, 1949, and then publicly opened for Contract 184 for the construction of a 20-inch pipe line to the Bellevue Reservoir, in the City of Boston, Mass. The work consists of furnishing and laying about 9100 feet of 20-inch inside-diameter pressure pipe, and includes the building of appurtenant structures such as manholes, culverts and other work appurtenant to the pipe line construction. Each bidder shall deposit cash or a certified check as security in an amount not less than $5,000. A bond in at least the full amount of the contract will be required of the successful bidder to secure the faithful performance of the contract, and for the payment of all persons performing labor or furnishing materials in connection therewith. Special attention is called to the requirements as to conditions of employment to be observed and to the minimum rates of wages prescribed by the State Commissioner of Labor and Industries. A schedule of such rates is included in the contract and a copy may be obtained at the office of the Metropolitan District Commission. The information for bidders, and the prescribed forms of proposal, contract, and performance bond, and plans and specifications may be examined at the above address, and copies thereof obtained from Karl R. Kennison, Chief Engineer of the Construction Division, upon the deposit of $10, to be refunded only to bidders or others returning them within ten days after the opening of bids. The site of the work and the existing conditions at and near the pipe line may be seen by applying at the office of the Head Construction Engineer, 107 Charles Street, Auburndale, Mass. The Commonwealth reserves the right to waive any informality in, or to reject, any or all proposals. No bidder may withdraw his bid within thirty days after the actual date of the opening thereof. A proposal which includes for any item a bid that is abnormally low or high may be rejected as unbalanced.

WILLIAM T. MORRISSEY,
Commissioner

October 27, 1949

U. S. Government

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. 2814) will be received by Bureau of Reclamation, Denver, Colorado, November 29, 1949, and then publicly opened for furnishing 3 vertical-shaft 22,500-horsepower, 150-rpm hydraulic turbines for Canyon Ferry Unit, Montana, Missouri River Basin Project. Delivery is desired within 900 days. For particulars, address Bureau of Reclamation, Building 1-A, Denver Federal Center, Denver, Colorado.

MICHAEL W. STRAUS, Commissioner. (421)

(Continued on page 85)

"Opportunity" Advertising:
Think
"SEARCHLIGHT"
First

OFFICIAL PROPOSALS
(Continued from page 84)

Bids: November 4, 1949 (414)

Field Lighting

NOTICE TO BIDDERS

Binghamton, New York
October 20, 1949

PROJECT: FIELD LIGHTING
BROOME COUNTY AIRPORT
BROOME COUNTY,
NEW YORK

1. SEALED BIDS, in duplicate, subject to the conditions contained herein will be received until 11:00 A.M., Eastern Standard Time, Monday, November 14, 1949, at the office of the Clerk of the Board of Supervisors, Broome County Office Building, Binghamton, N. Y., and then publicly opened and read, for furnishing all labor and materials and performing all work for the above-described project in accordance with the plans and specifications.

2. Copies of the plans and specifications may be obtained from the Clerk of the Board of Supervisors, Broome County Office Building, Binghamton, New York, upon payment of a charge of $15.00 for each set requested. Check and money orders should be made payable to the order of the County Treasurer, Broome County, New York.

3. Plans and specifications will be available for inspection at the offices of:
S. P. Carman
Security Mutual Building
Binghamton, New York
and
Seelye, Stevenson & Value
101 Park Avenue
New York 17, N. Y.

4. Certified check or bid bond for a sum of not less than 5% of the bid price will be required for each bid, payable to the order of the County Treasurer, Broome County.

5. Payment and performance bonds in the amount of 100% of the contract sum will be required.

6. The right is reserved, as the interest of the Owner may require, to reject any and all bids, to waive any informality in bids received, and to accept or reject any items of any bid.

7. Envelopes containing bids must be sealed and marked as follows:
Bid for Field Lighting for Broome County Airport, to be opened at 11:00 A.M., Eastern Standard Time, November 14, 1949.

8. The right is reserved, as the interest of the Owner may require, to revise or amend the plans and/or specifications prior to the date set for opening bids. Such revisions and amendments will be announced by addenda to all prospective bidders.

HOWARD DAVIS
Clerk of the Board of Supervisors
Broome County, New York

Bids: November 15, 1949 (416)

Construction of Structures & Grading

PENNSYLVANIA TURNPIKE
COMMISSION
Harrisburg, Pennsylvania

NOTICE TO BIDDERS

Sealed proposals will be received by the Pennsylvania Turnpike Commission, through the Chairman, 11 North Fourth Street, Harrisburg, Pennsylvania, until 10:00 A.M. (Eastern Standard Time), the 15th day of November, 1949, and immediately thereafter will be taken to the Public Utility Commission's Hearing Room No. 1, North Office Building, State Capitol, Harrisburg, Pennsylvania, and immediately publicly opened and read aloud, for the following contract:

For the construction of structures and the grading, drainage and paving of Turnpike Section 31G, part of the Western Pennsylvania Turnpike Extension in North Huntingdon and Hempfield Townships, Westmoreland County, Commonwealth of Pennsylvania. This section being situated as follows:

Beginning at a point approximately 50 feet West of Legislative Route 639 (Traffic Route 993) in North Huntingdon Township at Turnpike Station 380+60, Westmoreland County, thence in an Easterly direction 9,690 feet to a point approximately 25 feet West of Legislative Route 64103 in Hempfield Township at Turnpike Station 477+50, Westmoreland County, a distance of approximately 1.835 miles.

The approximate quantities of the principal items are as follows:

Class 1 Excavation, 524,000 cubic yards; Class 2 Excavation, 18,200 cubic yards; Reinforced Concrete Pavement, 58,000 square yards; Class A Concrete, 700 cubic yards; Class B Concrete, 9,200 cubic yards; Plain Steel Bars, 626,000 pounds; Fabricated Structural Steel, 1,033,000 pounds.

Copies of plans, specifications, and other contract documents, including cross-sections are on file and open to public inspection at the offices of the Pennsylvania Turnpike Commission located at Harrisburg, Pennsylvania, on November 1, 1949. Copies of specifications for grading, drainage, and structures may be purchased from the Pennsylvania Turnpike Commission for the sum of five ($5.00) dollars per copy. Copies of cross-sections may be purchased from the Pennsylvania Turnpike Commission for the sum of Fifty ($50.00) dollars per set, for each section.

Plans and contract documents exclusive of cross-sections and specifications may be obtained from the Commission upon deposit of Ten Dollars ($10.00) for each set, such deposits to be refunded in full to any actual bidder upon return of such documents in good condition within five (5) days after the date of the opening of the bids. Refund will be made for all plans, contract documents, and cross-sections returned, if the project is withdrawn from letting by the Pennsylvania Turnpike Commission. Remittances are payable to the Pennsylvania Turnpike Commission and must accompany requests for drawings, specifications, contract documents, and cross-sections.

The character and amount of bid security to be furnished by bidder is stated in the Instructions to Bidders.

No bids may be withdrawn for thirty (30) days after the scheduled closing time for receipt of bids.

PENNSYLVANIA TURNPIKE
COMMISSION
Harrisburg, Pennsylvania
Oct. 21, 1949

James F. Torrance
Secretary and Treasurer

EMPLOYMENT

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (18)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

PURCHASING AGENT Assistant for large construction firm. P-1110, Engineering News-Record.

CIVIL ENGINEER: About 34 with 5 years experience. Small specialized office with national coverage since 1923. Exceptional opportunity for energetic go-getter. Wesley Bintz, 301 S. Washington Avenue, Lansing 25, Michigan.

STRUCTURAL DESIGNERS. High grade experienced designers, detailers and checkers only. Bridge experience preferred. State experience, age, education and salary expected. P-1130, Engineering News-Record.

SANITARY ENGINEER, (a) Sanitary Engineer, graduate, with 10 to 15 years experience in water distribution and sewerage systems, waterworks and sewage treatment plants, dams, reservoirs, etc., for old established consulting engineering firm doing business in East and South. Must have some construction experience, thorough knowledge of sanitary design and be capable of assuming full responsibility of directing drafting room work and command full respect of subordinates. Permanent and fine opportunity. Salary based on ability. Position open immediately. Location, Pennsylvania. (b) Assistant Sanitary Engineer, graduate, with 3 to 5 years experience on work same as above, but with lesser degree of responsibility. Must have good grounding in sanitary design and capable of directing work of small squad of draftsmen and/or junior engineers. Opportunity, location and salary same as above. P-1262, Engineering News-Record.

ENGINEER TO take charge of engineering corps of County in south central New York. To be responsible for design and construction of County roads and bridges. P-1263, Engineering News-Record.

WANTED: ENGINEER experienced in investigation of river basins for the development of multiple purpose projects for irrigation, flood control, and generation of hydroelectric energy, for service in South America. Knowledge of Spanish not necessary but desirable. Good salary and traveling expenses from home to place of employment and return. P-1315, Engineering News-Record.

WANTED—AN experienced estimator for an established Philadelphia concern for large sewers, tunnels and bridges. State salary, experience, and when available. P-1309, Engineering News-Record.

POSITIONS VACANT

REINFORCED CONCRETE Designers and Detailers. Excellent opportunity for ambitious young men. Bar company or designing engineering experience essential. Send full details first letter to the Hausman Steel Company, P. O. Box 416, Toledo 1, Ohio.

ESTIMATOR WANTED by large General Contracting Firm located in Central Illinois. Applicant to be under 40 years of age, experienced in estimating all types of General Building Construction. If interested, advise age, education, experience and salary desired. P-1296, Engineering News-Record.

COLLEGE GRADUATE, C.E. degree with 2 to 4 years experience for steady employment. Must be recorded as Engineer in training for N. Y. State Prof. Engineers License. All work in N. Y. City. State full background and salary desired. P-1281, Engineering News-Record.

(Continued on page 86)

Chief Civil Engineer
WANTED

An excellent opportunity in an established west coast engineering firm for an exceptionally well qualified Graduate Civil Engineer, capable of taking charge of a Civil Department. Must possess comprehensive design experience and thorough knowledge of grading, drainage, roads, railroads, and utility layouts for municipalities.

In addition, applicant must have ability to discuss and develop prospective work with municipal, county and state authorities.

Submit photo with experience record covering above requirements in detail. Replies confidential.

P-1251, Engineering News-Record
621 S. Hope Street, Los Angeles, Calif.

STRUCTURAL DRAFTSMEN:

Needed Several First Class experienced detailers and checkers. Only those with previous structural fabricating shop experience need apply. Give complete information to Personnel Dept.

Consolidated Western Steel Corp.
Orange, Texas

STRUCTURAL STEEL ESTIMATOR

Well known New England fabricating company has an exceptional opening for young experienced structural steel estimator. A real opportunity exists for a man with estimating and sales ability. Give in detail experience, education, etc. References will be required. Replies held strictly confidential.

P-1277, Engineering News-Record
330 West 42nd St., New York 18, N. Y.

SEARCHLIGHT SECTION

EMPLOYMENT • BUSINESS • OPPORTUNITIES • EQUIPMENT—USED or RESALE

UNDISPLAYED RATE:
(Not available for equipment advertising)
$1.20 cents a line, minimum 4 lines. To figure advance payment count 5 average words as a line.
INDIVIDUAL EMPLOYMENT WANTED undisplayed advertising rate is one-half of above rate, payable in advance.
PROPOSALS, $1.00 a line an insertion.

INFORMATION.
BOX NUMBERS care publication New York, Chicago or San Francisco offices count as 1 line additional in undisplayed ads.

DISCOUNT of 10% if full payment is made in advance for four consecutive insertions of undisplayed ads (not including proposals).

DISPLAYED—RATE PER INCH:
The advertising rate is $11.50 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.

AN ADVERTISING INCH is measured 7/8 inch vertically on one column, 3 columns—30 inches—to a page. E.N.R.

NEW ADVERTISEMENTS received by November 4th appear in November 17th issue subject to limitation of space available.

WANTED

THREE OUTSTANDING MEN

to plan and supervise the work of design engineers on a $38,000,000 Water System Expansion Program; one registered in Civil, one in Mechanical and one in Architectural Engineering. Salary $6430 to $7147 per year. If you have a proven record of success in design and construction of major water pumping and filtration plants, we would welcome your application.

Supervisory Assistants ($5580 to $6297 per year) and Project Engineers, ($4809 to $5287 per year) in Architectural, Civil, Sanitary, Electrical, Mechanical and Structural Engineering will also be needed.

For information, write immediately to

DETROIT CIVIL SERVICE COMMISSION

15th Floor, Water Board Building Detroit 26, Michigan

POSITIONS VACANT
(Continued from page 85)

MATERIALS ENGINEER — C. E. Experience in highway materials, permanent, good salary and opportunity. Give full information. P-1188, Engineering News-Record.

POSITIONS WANTED

CONCRETE AND Asphalt Inspector-Technician—Available immediately. Plant operation, design and control of mix-capable administrator, handling of help, etc. Thoroughly knows his business—25 years experience, highest type of references. PW-1259, Engineering News-Record.

MUNICIPAL ENGINEER, Civil Engineer, graduate registered, with outstanding record in public works design construction and maintenance, including ten years with progressive municipality, available as senior engineer with municipality or consultant. PW-1114, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT, 25 years experience industrial and building construction excavations and foundation work. Organizer and producer of quality work. Midwest or western location preferred. Available in near future. PW-1108, Engineering News-Record.

CIVIL ENGINEER Or Superintendent desires another assignment to Spanish Speaking Latin America. American citizen, graduate engineer, registered, age 37, with 14 years experience in light and heavy construction, highways, railroads, surveys, and reports. Able to speak Spanish and work both Grinco and Indian labor. At present in South America, but available for new assignment about Jan. 1st. PW-1158, Engineering News-Record.

BUILDING CONSTRUCTION: Thirty years experience covering estimating, office management and general supervision all types of buildings. PW-1204, Engineering News-Record.

SALES ENGINEER. Graduate Civil Engineer desires sales position. Young, 3 years experience with nationally known fabricator as detailer. Prefer mid-west, others considered. PW-1275, Engineering News-Record.

REPRESENTATIVE AVAILABLE

PRODUCER OF meritorious highway product can be represented by engineer of proved ability. I have promoted and sold to State and City officials, highway contractors, during past 25 years. Personally acquainted with highway officials in 20 States.

RA-1201, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

POSITIONS WANTED

GENERAL SUPERINTENDENT — 50 — real asset as key man in live organization. Thoroughly competent building man, much heavy experience. Spent years as construction Superintendent before moving up and considered one of the best. Excellent brochure and references. Address PW-1184, Engineering News-Record.

CONSTRUCTION SUPT., Project Manager, 22 years proven construction record: hospitals, schools, industrials, large housing projects; experienced preparing bids. Highest references. Will travel. PW-1308, Engineering News-Record.

GENERAL CONSTRUCTION Superintendent or Project Manager. Graduate Civil and Mechanical Engineer, 15 years experience as General Supt. on varied projects including refineries, earthwork and docks. Past six years on Latin American work, speaks and reads Spanish, Portuguese, German. A-1 references. Native American, good health. Foreign assignment preferred. Available immediately. PW-9945, Engineering News-Record.

MECHANICAL ENGINEER: 8 years chemical plant design and process engineering, 10 years diversified, maintenance, machine design and supervisory experience. PW-1311, Engineering News-Record.

MILLWRIGHT SUPERINTENDENT: Knows handling and erection of machinery and equipment. Fast worker. Will go anywhere. PW-1299, Engineering News-Record.

BUSINESS OPPORTUNITY

Partnerships and Investments.

Executive Engineer (Arch) under 40 has capital with services for an established business or design office. BO-1264, Engineering News-Record.

WANTED

COST ENGINEER

A large construction organization wishes to add a top-flight Cost Analyst to its permanent staff. The person selected must understand all field details that influence cost in large-scale contracting and be able to make on-the-spot as well as long-range analyses that will be useful in project operations. Please give complete information regarding personal history, education, and business experience in your reply. It will be kept confidential. Salary open.

P-1305, Engineering News-Record
68 Post St., San Francisco 4, Calif.

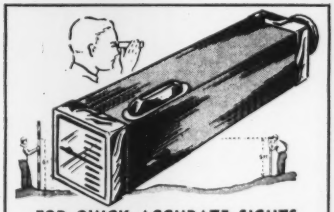
WANTED

WANTED
1—Backhoe for Northwest No. 6
1—60' Boom
WILLIAMS CONSTRUCTION CO.
Box 145, Middle River Baltimore 20, Md.
Phone: Essex 1310

WANTED
50 to 80 cubic yard, three compartment, steel concrete batching bin with weigh batcher. Also a 40 to 50 ton low-boy flat trailer drop deck type. Also need a tractor truck to pull this unit.
Write 5910 MacArthur Blvd., Washington 16, D. C.

WANTED
2—2½ yd Dragline Crane for rental about December 1st; rental period approximately 4 months; may buy; vicinity of Philadelphia. What have you?
W-1313, Engineering News-Record
330 West 42nd St., New York 18, N. Y.

EQUIPMENT WANTED
10-12 LeTourneau Scrapers
(Carryall scrapers) Model L.P. or L.S., L.P. preferred. Second-hand, good condition. For shipment overseas.
MILTENBERG & SAMTON, INC.
110 E. 42nd St., New York 17



FOR QUICK ACCURATE SIGHTS
NEW IMPROVED HAND

SIGHTING LEVELS

For preliminary survey. Ideal for builders, laying drains, roads, foundations, etc. Has thousands of uses. Comes with instructions.

SPECIAL LOW PRICE **$1.85** SHIP. CHG. 15¢ EXTRA

J. JACOB SHANNON & CO.
214 N. 22nd St. PHILA. 3, PA.
THE OLDEST EQUIP. HOUSE IN PHILA.

FOR RENT

20-10 TON TO 25 TON CAPACITY

TRUCK CRANES

SECTIONAL BOOM LENGTHS TO 130 FEET

LIMA & P & H CRAWLER CRANES

30 TON TO 50 TON CAPACITY

SECTIONAL BOOM LENGTHS TO 175 FEET

THE ROGER SHERMAN TRANSFER CO.
EAST HARTFORD, CONN.

Branches: SPRINGFIELD, MASS. NEW HAVEN, CONN. ALBANY, N. Y.

$12,000 . . .

buys a

KOEHRING

Model 703 1¾ cu. yd.

Cat. D13000 engine, boom 50 ft.; Manufactured 1943, slightly used, perfect operating condition.

RAYMOND TOMASSI
3031 N. 16th St.
Phila 32, Pa. Sagamore 2-1199

LOCOMOTIVES

1—General Electric 44 Ton Diesel Caterpillar — D-17000 Engines.

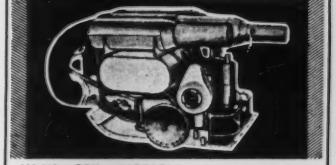
1—70 Ton (Propane) Electric Recently Overhauled.

3—50 Ton Electric.

ALL IN FIRST CLASS CONDITION
WRITE OR WIRE FOR DETAILS

FRANK M. JUDGE & COMPANY, INC.
7010 Empire State Building
New York City

HEAT PORTABLE HEATER SALE!



100,000 BTU PORTABLE
HEATER and DRYER

Stewart Warner portable, powerful 100,000 BTU gasoline-burning Heaters, with Turbine type blowers; 1½ hp. air-cooled, ball-bearing engine; 3 ducts (45-ft. total). IMMEDIATE DELIVERY.

SALE PRICE $195.00

Excellent Operating Condition **Guaranteed**

HEATING buildings, shops, sheds, barns, warehouses, tunnels, bldgs. under construction, spot-heating, etc.
DRYING plaster, paint, grains, mortar, concrete. Torrid blasts of heat.
PRE-HEATING engines, tractors, trucks, equipment, etc.
THAWING frozen areas, machinery, pipelines, tanks, etc.

- VAST QUANTITY OF REPLACEMENT PARTS
- Also SERVICE MANUAL & PARTS CATALOG

PHONE COLLECT—your Heater can be shipped within 2 hours, or, SEND FOR LITERATURE

BERNSTEIN BROS.
MACHINERY CORPORATION
Phone 8404 • "Since 1890" • PUEBLO, COLO.

FOR RENT

Rent with Purchase Option
PAVING EQUIPMENT
Forms, Bins, Finishers, Pavers, etc., etc.
DRAVO-DOYLE COMPANY
2601 Preble Avenue Pittsburgh 12, Pa.

FOR SALE

1201 Lima Shovel, Serial #4109
New 1947, Excellent condition
Boom 32' 6" Sticks 22'
Cummins "L" Engine

$42,500.00

with 2-3 C. Y. Esco Buckets & spare parts.

RHUDE & FRYBERGER
P.O. Box 779
Hibbing, Minnesota

Notice to Advertisers

Because of the Holiday, Election Day, November 8th, the "Searchlight" pages of the

Nov. 17th Issue of
ENGINEERING NEWS-RECORD

Close for press earlier than the usual weekly closing time.

The cooperation of advertisers is solicited in forwarding new copy, or changes of copy, to reach us accordingly.

FINAL CLOSING TIME
Display and Undisplayed Ads
Friday, November 4th
PROPOSALS
Thursday, Nov. 10th

WANTED

Rock Shovel 1½ Yd. to 3 Yd.
1 Cat. Dozer D-8, TD 18 or L
1 Wagon Drill IR 71

VICTOR OOLITIC STONE CO.
Bloomington, Indiana

FOR SALE

Thermopane Glass
710 Lites 14 x 15-11/16

HARWOOD CONSTRUCTION CO., INC.
1520 K Street, N. W. Washington 5, D. C.
Phone RE-0707

CONCRETE PLANT

1—Complete Concrete Mixer Plant, including 2—model 2S-S mixers, less than 18 months service), with 25 HP, 440 Volt Motors, Blaw-Knox 1¼ yd. weigh batcher and 105 ton 2 compartment aggregate bin, 300 Bbl cement bin, cement elevator and track unloading equipment, heavy (26 tons) structural steel superstructure. The assembled plant is 25 ft. by 30 ft., overall, and the top of the cement elevator is 60 ft. high.

This plant is located at Willow Island Station, six miles south of St. Marys, West Virginia, on West Virginia State Route #2. Photographs and erection drawings are available.

Write for price and further particulars.

MONONGAHELA POWER COMPANY
Attention: **W. P. Roberts**
Fairmont, West Virginia

FOR SALE

Gardner-Denver Air Compressor, 315 C.F.M. Diesel Portable mounted on 4 pneumatic tires, Model WBG 315D, Serial #136705, Caterpillar D8800 Engine.

Gardner-Denver Air Compressor, 315 C.F.M. Diesel Portable mounted on 4 pneumatic tires, Model WBG 315D, Serial #136704, Caterpillar D8800 Engine.

Gardner-Denver Air Compressor, 315 C.F.M. Diesel Portable mounted on 4 pneumatic tires, Model WBG 315D, Serial #136036, Caterpillar D8800, Engine Serial #656885.

1020 Unit Crane w/3 Cyl. GMC Engine, Machine Serial #48567, Motor #371-32256.

Byers 61W ½ cu. yd. Traveler Truck Crane, gas engine driven on pneumatic tired wheels, complete with electric starter, 30' boom with tagline and fairlead, Serial 6160, with new 12 M Williams clamshell bucket with digging teeth, Serial 10376.

Buckeye Model 160 Ditcher complete, Serial #160-34, with Buda Engine, equipment for 32" cut 16' depth.

Buckeye Model 120 Ditcher, Serial #120-62 complete with Buda 6DT-317 Diesel Power and Trans. for 26" cut 11'6" depth.

All of the above equipment less than one year old.

WALSH OIL COMPANY, INC.

Joliet, Ill. Phone: 7422

Route 66 and E. J. & E. Tracks

FOR SALE

1—No. 56 Pioneer portable crushing plant powered by two D17000 Caterpillar Diesels equipped with 30-inch x 42-inch primary crusher, 24-inch x 54-inch roll crusher and with 40-inch x 12-foot traveling grizzly.

3—Koehring Dumpsters Serial Numbers D-2577, D-2578 and D-2579.

ALL IN EXCELLENT CONDITION
NOW AVAILABLE

Kearney, Crume & Company

3606 Commercial St., Dallas, Texas

Phone Tenneson 3-3783

For Sale at a Bargain Price

2—D8 Tractors 8R Series

1—D7 Tractor 7M Series

1—D8 Tractor 1H Series

All in good working condition, equipped with LeTourneau equipment.

1—Lima Model 750, 1¾ yd. diesel, air control, excellent condition.

1—Osgood Model 800, 1½ yd. diesel, air control, excellent condition.

TUCKAHOE CONSTRUCTION CO.

116 Columbus Avenue, Tuckahoe 7, N. Y.

NEW PARTS

FOR

Tractors, Graders, Scrapers, Shovels, Cranes, Trench Diggers, etc.

(Allis Chalmers, Caterpillar, International, Barber-Greene, Insley, Buckeye, Northwest, Loraine, Turnapull.)

Cutting Edges All Sizes—Fairleads

CEMENT MIXERS

2 Ransome and 1 Rex

Excellent Condition

JULIUS HEBENSTREIT, INC.

56-15 58th St. Maspeth, L. I.

Tel. DAvenport 6-1461

Cable: Habenjul New York

FOR SALE

Available after September 1, 1949

1—Marion ¾ c.y. shovel 1942 Model 331 with Backhoe attachment complete.
1—Adams Grader, 1941 Model #303-H-371.
1—Parsons Trencher, Model #25, Serial #1560.
1—TD 14, 1946 International Hydraulic Control Bulldozer Serial #TDF-12512 T11F.

All equipment recently overhauled and in first class condition, attractively priced. Further details upon request.

E. B. McGURK, INC.

P. O. Box #630, 355 Barbour Street Hartford, Conn.

Telephone—Hartford 7-7106

S. F. Mitchell, Pur. Agent

FOR SALE

3/4 yd. Speeder gas shovel • 10 ton Austin 3-wh. roller • 2 yd. LaPlant-Choate Scraper • #4, 4½ & 5 Champ. jaw crushers • #19 Kennedy Gyratory • 12 x 16 & 24 x 16 2-roll crushers • #4 A.C. Pulverator • 24" x 16' Apron Feeder • 16 x 25 Flory 2-dr. elec. hoist • 16 x 23 Lidgerwood 3-dr. steam hoist • 25 ton Porter std. ga. fireless locomotive.

HAGERSTOWN EQUIPMENT CO., INC.

HAGERSTOWN, MD.

FOR SALE OR RENT

(also with option to buy)

LORAIN MOD. 79 (of 1½ cy cap) shovel—backhoe—crane
LORAIN MOD. 80 (of 1¾ cy cap.) D13000 Caterpillar engine
completely rebuilt, in excellent condition

BENDIX MACHINERY CO., INC.

401 Broadway, New York 13 Tel: Canal 6-5693

FOR SALE

30 ton Industrial, model #7, diesel powered.
25 ton Industrial, model #5, diesel powered.
22½ ton Browning, model #8, diesel powered.
Bucyrus-Erie, model 41-B, Crane, steam powered
Barber-Green Maintenance Plant — Locomotives, standard and narrow gauge—Gravel & Cement Bins, all sizes—Pile Driving Equipment—Hoist, gas, electric, steam powered—Tank Car Heater—Cranes, ⅜ yd. to 5 yd., 5 mts. old to 30 yrs.

STONE THE CRANE MAN

415 Brainard Ave. Detroit 1, Michigan

DERRICK

15 ton steel stiffleg derrick.
35' mast, 85' boom, 18'6" extension
$2,250.00
Capacity 15 tons with 85' boom at 45 degrees radius.

A. F. WAGNER IRON WORKS

1905 S. First St. Milwaukee, Wis.

NEW Guaranteed—1¼" PNEUMATIC DRILLS

UP TO 60% off

WRITE NAVY SURPLUS INGERSOLL RAND CHICAGO PNEUMATIC

BERKELEY DISTRIBUTORS, Inc.

16 JOHNSON AVE., HACKENSACK, N. J.

FOR SALE or RENT ALL LATE MODELS

1—N. W. Shovel, 2½ c.y. new Oct. 1946

1—N. W. Shovel, 1½ c.y.-new April 1946

1—Allis Chalmers Tractor Model HD19H, new May 1948

5—D W 10's—used 2500 hours

1—Caterpillar Auto Patrol #12—9K4626

1—Caterpillar D8 Angledozer #8R8933

1—Caterpillar D7 Bulldozer 4T5988

WILLIAMS CONSTRUCTION CO.

Box 145, Middle River, Baltimore 20, Md.

Phone: Essex 1310

FOR SALE

1—1½ Cu. Yd. Amsco Shovel bucket, new, complete with teeth and sheave for P & H Shovel. Price $1450.00

Phone Williams 1-8600
Hillsgrove, Rhode Island

D-8 DOZER

Serial #2U5599 Cat. Tilt Blade 2-Drum Cat. Hoist or Cat. Hydraulic Blade.

STEWART S. SILL

Sodus Point, New York

FOR SALE

New Bucyrus-Erie 200-W diesel dragline

125' Boom, 6 yd. Bucket, 390 H.P. Engine
Never used, immediately available, central location. Address
FS-1049, Engineering News-Record
68 Post Street, San Francisco 4, Calif.

FOR SALE

PAVER

34-E Koehring Dual Drum Located Near Memphis, Tennessee. $8,000.00.

T. L. JAMES & COMPANY, INC.

Kenner, Louisiana

REX TRUCK MIXER

4 YARD—TM #371 On Mack AK622558 in Working Condition $1600.

CONCRETE CARRIERS INC.

800 Passaic Avenue East Newark, N. J.

FOR SALE

One used Link Belt Multi-Louvre Dryer $610, Speed 66 F.P.M., with Auxiliaries including Air Heater—990,000 B.T.U. per hour, Cyclone Collector, Exhauster 1710 C.F.M. at 200° F., Gas Mixer and Combustion Blower, Controls, and Motors.

CALGON, INC.

P.O. Box 1346 Pittsburgh 30, Pa.

FOR SALE

1 Buckeye ¾ yard model #70 Shovel 1¾ yard Back Hoe Attachment and spare parts. Will trade for ½ yard machine.

S & S CONSTRUCTION CO.

Box 422 So. Fallsburg, N. Y.

RAILS-TIES
TRACK ACCESSORIES

RAILS - ANGLE BARS
TIE PLATES
Write for Regular Bulletins of
CURRENT LISTINGS
Complete Range of Sizes
Always Available
RAIL DIVISION
COMMERCIAL METALS Company
LATIMER AT CORINTH, P.O. BOX 1046, DALLAS

PILING

For Sale or Rent
STEEL SHEET PILING
Most all lengths and sections at various locations
Vulcan and McKiernan Pile Hammers & Extractors
MISSISSIPPI VALLEY EQUIPMENT CO.
509 Locust St. Chestnut 4474 St. Louis, Mo.

SURVEYING INSTRUMENTS
USED • REBUILT • SALE
RENT • REPAIRING

SURVEYING INSTRUMENTS FOR RENT
DANIEL McFARLAND
624 Second Ave. San Francisco 18, Calif.

It costs no more
to have your instruments of any make
repaired by the makers of the
WORLD'S FINEST SURVEYING INSTRUMENTS
since 1871
C. L. BERGER & SONS, INC.
37 Williams Street, Boston 19, Mass.

Caterpillar Diesel Engines
Model D-13,000 and D-8800
Complete - Very few hours
JULIUS HEBENSTREIT, INC.
56-15 58th St., Maspeth, L. I., N. Y.
Tel. Davenport 6-1461
Cable Address: Habenjul New York

FOR SALE
1—N. W. Shovel
1½ c.y., Diesel New, never been used.
A. V. WILLIAMS
Box 145, Baltimore 20, Md.
Phone: Essex 1312

New Guaranteed . . . 60 TON
HYDRAULIC JACKS
Navy Surplus
ILLUSTRATED CATALOG 60% off
BERKELEY DISTRIBUTORS INC.
10 JOHNSON AVE. HALEDON, N. J.

FOR SALE
BACKHOE ATTACHMENT
complete for Lorain 40. Has new Amsco Bucket.
PRICE $1,650.00
EARLE EQUIPMENT CO.
6331 Tireman Ave. Detroit 4, Mich.

T-D 18 ANGLE DOZER
Serial #3383 Bucyrus Hydraulic Angle Blade Tractor A-1 Condition—New rails—Rollers $5,500.
ROY SELLERS
Box 13, Alberta, Virginia

FOR SALE
1—Buckeye Trencher Model 160, Ser. No. 4126. Good condition.
1—Insley 8-wheel 12-ton Platform Trailer. New May 1948.
McGowen Contracting Co., Inc.
OPELIKA, ALABAMA
Phone 1218 P. O. Box 908

FOR SALE
Paragon Revolute 42-inch printing machine. Purchased new in 1934 for $1,800. Has had good care and now in good repair. Price $500 F.O.B.
UNITED NATURAL GAS COMPANY
308 Seneca Street, Oil City, Pennsylvania

BARGAINS FOR SALE
100 KW. Diesel Engine Generator Sets
11—100 KW., 120/240 V. D.C. Delco Generators dir. con. to 150 HP Model GBD-8, 5½x7, 8 cyl. Superior Diesel Engines, elec. starting with muffler, power panel and accessories.
4—100 KW., same as above with 220 or 440 V., New A.C. Generators.
2—100 kw., 220/440 v. 3 ph. 60 cy. West.-General Motors Model 3-268A.
2—60 kw., 220/440 v. 3 ph. 60 cy. Delco-Cummins DIESEL.
10—NEW 37½ kva., 220/440 v. 3 ph. 60 cy. Le Roi GASOLINE.
2—30 kw. 220/440 v. 3 ph. 60 cy. Century-Buda Diesels.
11—NEW 25 kva., 120/220 v. 1 ph. 60 cy. Le Roi GASOLINE.
1—10 kw. 200/440 v. 3 ph. 60 cy. Hercules GASOLINE.
1—7½ kva. 120 v. 3 ph. 60 cy. Wisconsin GASOLINE.
11—3 kva. 110/220 v. 3 or 1 ph. Hercules Gasoline.
WRITE FOR CATALOG Listing A.C. & D.C. Motors 1 to 1500 HP. M.G. Sets, Transformers. Brand New Control Equipment.
DUQUESNE ELECTRIC & MFG. CO.
PITTSBURGH 6, PA.

FOR SALE
$3500.00
AUSTIN BADGER CRANE
New 1946
Box 427, Bridgeville, Pa.

SACRIFICE SALE
(1)—Caterpillar D7 with bull-tilt dozer, D.D.P.C.U. 4T series.....$7999.00
(1)—Caterpillar D7 Hydraulic-angle dozer 3T series $7500.00
(1)—International CT-9 Traction swing crane $2750.00
(1)—Mack Tractor 1941, Model L. M. Cummings Diesel engine 150 H.P. New 1100/24 tires, fifth wheel, and saddle tank. Air brakes. $2750.00
The above equipment is all reconditioned, owned by us and can be seen at our yard.
INTERNATIONAL CONSTRUCTION EQUIPMENT CORPORATION
58-02 Queens Boulevard
Woodside, L. I., N. Y.
Phones: Havemeyer 9-9210-Hickory 6-0699

PROFESSIONAL SERVICES

Industrial Drilling and Boring Corp.
FOUNDATION BORINGS
GEOLOGICAL SURVEYS
P. O. Box 1206 1746 E. Adams St.
Jacksonville, Florida

Consoer, Townsend & Associates
Water Supply—Sewerage—Flood Control & Drainage — Bridges — Express Highways—Paving—Power Plants, Appraisals — Reports — Traffic Studies—Airports.
351 East Ohio St., Chicago 11, Illinois

Metcalf & Eddy
ENGINEERS
Investigations Reports Design
Supervision of Construction and Operation
Management Valuation Laboratory
Statler Building, Boston

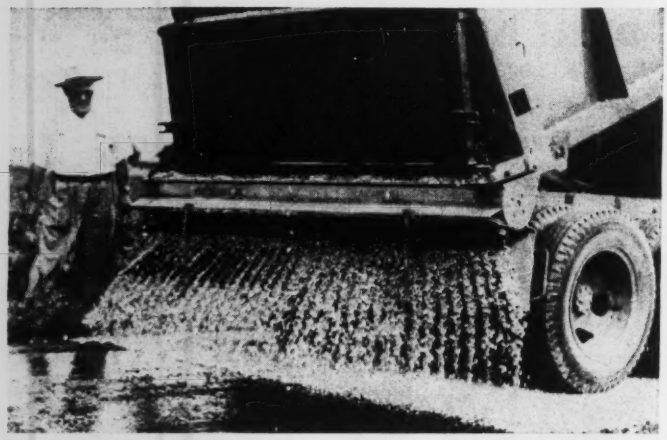
Gustave M. Goldsmith
Consulting Engineer
Structural and Building Design
Quantity Surveys
Production Planning
1734 Bella Vista, Cincinnati 29, Ohio

Jones, Henry & Schoonmaker
(formerly Jones & Henry)
Consulting Sanitary Engineers
Water Works, Sewerage & Treatment
Waste Disposal
Security Building Toledo 4, Ohio

Albright & Friel, Inc.
Consulting Engineers
Water, Sewage and Industrial Waste Problems, Airfields, Refuse Incinerators, Power Plants, Industrial Buildings, City Planning, Reports, Valuations, Laboratory.
121 So. Broad St., Philadelphia 7, Pa.

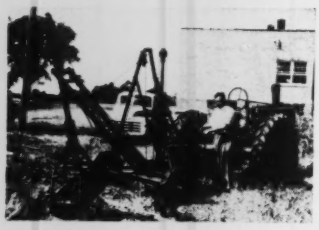
EVERY WEEK . . .
consultants may maintain contact with their prospective clients through the *Professional Services Section*
ENGINEERING NEWS-RECORD, 330 West 42nd St., N. Y. 18, N. Y.

NEW PRODUCTS



Dual-Purpose Spreader Is Hydraulically Controlled

One-man operated chip spreader has a push-button dash control. The Spread-All lays a 9 to 13-ft.-wide swath, using chips up to 1 in. in diameter. It can also be used as an ice-control spreader. Hydraulically operated from the power take-off of truck engine, gate opening and closing can be operated while truck is moving forward, backward, or standing still. Manufactured by: CENTURY ENGINEERING CO., WAUKESHA, WIS.; national distributor, PAUL M. COLE CO., 30 N. LASALLE ST., CHICAGO 2, ILL.



Light-Duty Trencher

Portable digging unit quickly attaches to any type of tractor. The bucket is 17 in. wide and has a capacity of ⅛ yd. When used for trenching, the unit has a capacity of 100 ft. per hr. of trench 4 ft. deep and 17 in. wide. Power for the Badger trencher is obtained from the tractor power take-off.—THE BADGER MACHINE CO., WINONA, MINN.

Recording Pressure Gage

Mechanical-type recording absolute pressure gage is based on new principle involving pressure-sealed lever arm so constructed that it is frictionless, free from lost motion, and free of turning moments due to changes in differential pressure across it. The Series 500 gage is offered in ranges from 0 to 20-mm mercury up. It gives an accurate record of vacuum in terms of absolute pressure, inherently correct for barometric variations. The new instrument is offered as a recorder, automatic controller, and for remote measurement and automatic control of absolute pressure.—THE BRISTOL CO., P. O. BOX 1790, WATERBURY 91, CONN.

Incombustible Ceiling Material

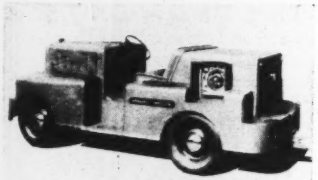
Incombustible acoustical ceiling material is available as tiles or boards. Certile is made with both plain and perforated surface, and is available in a wide variety of colors which can be repainted without affecting acoustical properties. It will not warp, buckle, expand, or contract; is light in weight and easy to cut; and can be applied by adhesive method, by clips nailed to furring strips, or by any accepted mechanical suspension systems.—CERTAIN-TEED PRODUCTS CORP., ARDMORE, PA.

Drill with 1¼-Inch Capacity

New 1¼-inch-capacity electric drill is recommended for all types of heavy construction and maintenance work. It can be used for drilling metal and wood, driving lag screws, and running nuts. Features include on-off switch in handle, interlocking reverse switch, and detachable side pipe handle. Optional equipment includes a ⅝-inch Jacobs chuck, slip clutch that can be set for predetermined pressure, and socket wrenches from ⅜ to 1½-inch capacities. Operates on 115-volt ac/dc; also available for 230 volts.—MALL TOOL CO., 7730 S. CHICAGO AVE., CHICAGO 19, ILL.

Pipe Bending Machine

Semi-automatic machine is recommended for speedy handling of production jobs or short-run and maintenance bending work requiring frequent changeover of set-up. The Model 1400 bender handles tubes and pipes up to 5-ft. long, but can be extended to take any length of pipe. Maximum rated capacity is 1-in. outside diameter, 16-gage steel tubing, with a maximum bending radius of 8½-in. to centerline of pipe. Will also handle bars or rolled or extruded sections. Bends are made by a 2-in. movement of the hydraulic valve lever. The 1400 bender weighs 1,000 lb.—PINES ENGINEERING CO., AURORA, ILL.



Self-Propelled Arc Welder

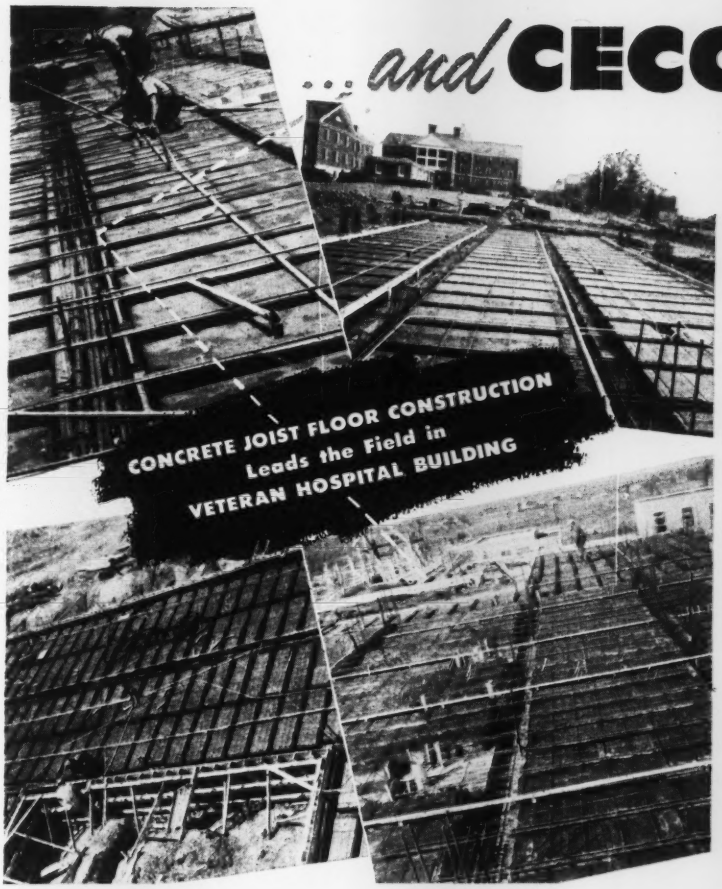
Designed as mobile unit to speed welding operations in the field, the Weldmobile is available in two new models—the GR-301-M with a 300-amp. welder for light to heavy welding requirements; and the GR-401-M with a 400-amp. welder for medium to extra-heavy welding requirements. Either can be furnished with 1 or 3-kw. auxiliary dc. power for supplying lights or portable power tools. Weldmobile has a rear coupler to permit towing additional equipment—trailer-mounted welders, air compressors, etc.—HOBART BROS. CO., BOX 389, TROY, O.

Magnesium Wall Forms

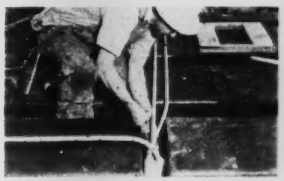
These forms will not rust, swell when wet, or contract when dry. They also possess a high degree of resistance

(*Continued on page 92*)

...and CECO is first in Service



Erecting steelforms on open wood centering preparatory to placing reinforcing steel. Use of steelforms mean a saving in lumber.



Placing electrical conduits in a bridging joist. All conduits are thus placed, eliminating necessity of extra space for service ducts.

Concrete is being poured here over the steelforms and around the reinforcing steel. The final step is removal of steelforms and lumber after concrete sets.

As a building method, concrete joist construction leads the field in the Veteran Hospital Building program. Here, as in other buildings, strength and durability are of prime importance. Concrete joist construction meets the need in supplying rigid, strong floor constructions which are fire resistive and sound proof. Construction costs are low since steelform jobs require less concrete, less lumber, less labor. Steelforms are used over and over again at a nominal rental charge.

As the originator of the removable steelform method of concrete joist construction, Ceco is first in the field. So, for concrete joist construction, call on Ceco, the leader over all.

CECO STEEL

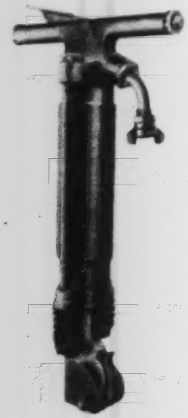
CECO STEEL PRODUCTS CORPORATION

General Offices: 5601 West 26th Street, Chicago 50, Illinois

Offices, warehouses and fabricating plants in principal cities

In construction products **CECO ENGINEERING** *makes the big difference*

to corrosion by the alkalis in concrete. Magnesium's light weight makes the forms easily portable, panels weighing less than 3 lb./sq. ft. High rigidity is obtained through the use of ⅜-in. plate. These forms produce a smooth-surfaced wall which has no waves or dents to require rubbing or plastering. —Symons Clamp & Mfg. Co., 4625 W. Diversey Ave., Chicago 39, Ill.



Pneumatic Paving Breaker

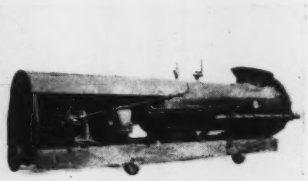
The RC-80 paving breaker features the Reed-Cleco rock-drill-type valve which provides full control of both power and reserve stroke. This is said to insure hard, uniform blows, fast action, minimum recoil, easy riding qualities and low air consumption. The reversible grooved piston is cushioned on the power and return stroke, reducing operator fatigue and eliminating side rod breakage. Large oil reservoir provides automatic lubrication; pressure-seated throttle valve gives positive shut-off and accurate control; air reservoir in the back head assures uniform air pressure to the piston; and oversize air porting assures longer effective stroke and full pressure on the piston during the power stroke.—Cleco Division, Reed Roller Bit Co., P. O. Box 2119, Houston 1, Texas.

Diesel Electric Plant

Diesel-powered electric plant produces 5,000 watts ac. The Model 5DRP features smooth operation and compact design eliminating the need for bolting the unit down. Available in 50 or 60-cycle units, it has a weight of 725 pounds, less batteries. Dimensions are 38¾ inches long, 30¼ inches wide, and 26¾ inches tall.—D. W. Onan & Sons Inc., 5391 Royalston Ave., Minneapolis 5, Minn.

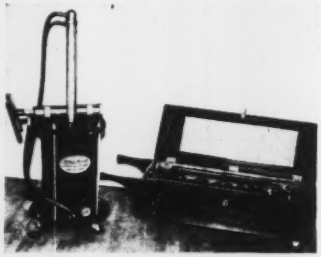
Spray Finish for Metal Homes

New products announced for exterior finishing of prefabricated metal homes include a two-coat sand-finish, spot glaze, and a metal-roof coating. Prefab Exterior Sand Finish System is used to produce a sand finish or stucco effect on walls, and is designed for spray application in the field over a shop coat of special zinc-chromate primer. Spot glaze, used to fill joints, is applied by putty knife over bare steel or previously painted surfaces. The roof coating is similar in consistency to fiber-base roof coatings.—The Arco Co., 7301 Bessemer Ave., Cleveland 4, Ohio.



Pneumatic Concrete Placer

Production has resumed on the Worthington-Ransome pneumatic concrete placer. This 14-cu. ft. machine requires 400 cu. ft. of air for 100-ft. shots at the rate of 60 per hour. It can be used to place concrete in subways, tunnels, isolated bridge piers, and other places which are inaccessible. — Worthington Pump & Machinery Corp., Harrison, N. J.

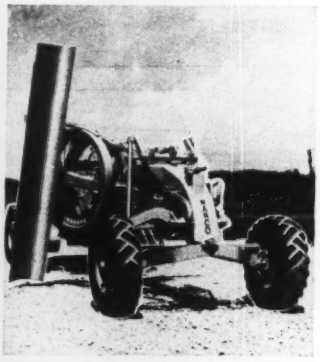


Hydraulic Sleeve Puller

Portable power unit can be equipped with adapters for use in removing and installing dry cylinder sleeves in heavy-duty truck engines. The Model 10 can be attached to any standard air line, and develops a 115 to 1 ratio of mechanical pressure at the ram. No other auxiliary power is required for operation of the unit. — International Tool Corp., P. O. Box 697, Chula Vista, Calif.

Photo-Copy Kit

Photo-copying equipment is now available in a special packaged unit designed to save table space. The package consists of a Model L Tru-Copy-Photo machine with a 9 x 15-inch copy surface, necessary chemicals, electric dryer, sensitized paper, squeegie, and vertical, stainless steel tank with cover and hangers. No dark room is required when using this equipment.—General Photo Products Co., Inc., 15 Summit Ave., Chatham, N. J.



Grader in 76-Hp.

General-duty motor grader in 76-hp. range incorporates features built into the Wareo 4D-100 heavy-duty unit. These include blade which revolves in full circle without removing scarifier or teeth, and travels from 90-deg elevation on one side to 90-deg. elevation on the other without operator leaving the cab; effortless hydraulic control; sliding moldboard for extra side reach; powerful diesel engine; and ample working clearances.—W. A. Riddell Corp., 200 Warren St., Bucyrus, Ohio.

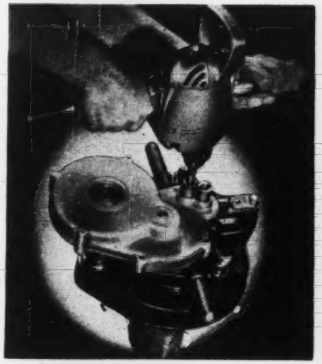
Distance-Measuring Device

Rapid, accurate measurements over terrain can be made by one man using the Rolatape. This device features a wheel with a fixed measuring tape recessed between rubber rims. In operation, the back edge of the wheel is placed at the starting point and the wheel rolled along until its front edge reaches the destination. There is nothing to drag, wind, unwind, or peg down. The telescoping handle shortens to 20 inches.—Co-Jay Corp., 5959 S. Hoover St., Los Angeles 44, Calif.

Air-Cell Concrete Stave

For construction of industrial storage bins and farm silos, a new air-cell concrete stave has been produced which through air insulation not only helps to prevent freezing but also provides greater strength with less weight. The new stave is 4 in. thick as compared to the conventional 2½-in. thick solid stave and weighs about one-third less. Each stave has five cells which provide air insulation. The stave can be tamped from all sides, with a great

resulting density, and its strength, due to its truss-like construction, is very great.—Marietta Concrete Corp., Marietta, Ohio.



Portable Pipe Threader

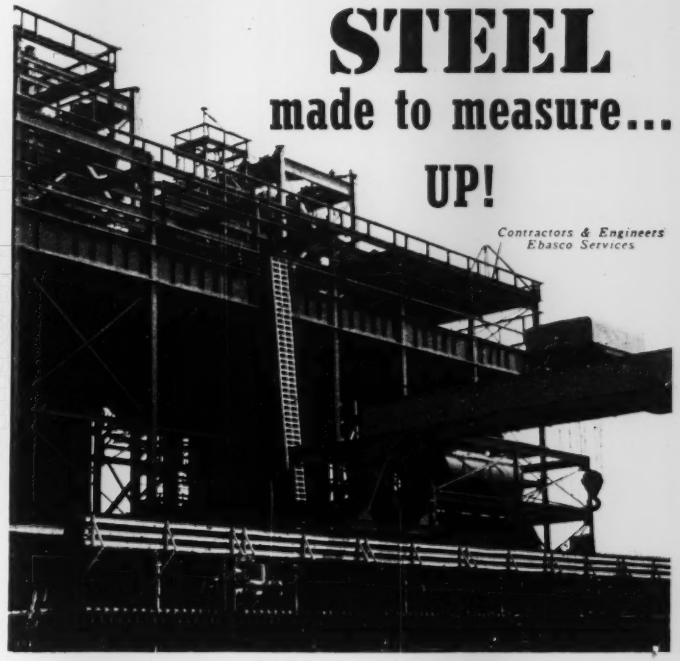
Lightweight tool (14 lb.) handles up to 8-in. pipe, and can be operated in any position—horizontal, vertical, or at an angle. The Porta-Drive pipe threader is driven by a ½-hp. electric drill and attaches to any standard set of dies by specially designed adaptor yokes. After threading is completed, insertion of the drill head into a reverse drive socket allows quick removal of the die.—Muncie Gear Works, Inc., Muncie, Ind.

Wire-Rope Swivel

New-type swivel has double roller bearings and will swivel under full load. Features include both thrust and radial roller bearings, completely streamlined bodies, heavy load capacity in relation to size, permanent lubrication, and replaceable parts. Available in five sizes for use with ¼, ⅜, ½, 1, and 1½-in. wire-rope; and with four types of ends—eye bolt, hook bolt, integral eye, or clevis.—Flexo Machines Co., 456 N. Aberdeen St., Chicago 22, Ill.

Steel Locknut

Features of Security Locknut include: stays put exactly where it is positioned; can be applied on the bolt in either direction; bolt load or stress is borne entirely by nut and not by the locking device; nut may be removed and re-applied without losing its locking power; and repeated applications do not distort the threads. The Locknut consists of a standard steel nut and a slightly elliptical retainer ring combined in a single unit. Security Locknuts are made with National Coarse and National Fine threads in standard sizes from ⅜ to 2½ in.—Security Locknut Co., 1815 N. Long Ave., Chicago 39, Ill.



Good fabricated steel should exceed bare mechanical specifications. It should measure up in every way—clean appearance, maximum utility of interior spaces, longest life expectancy, and above all, be furnished to meet erection schedules. This new power plant at Lumberton, N. C., typifies Ingalls' modern fabrication methods because it meets all standards of good workmanship. For fabricated steelwork of any type, figure with Ingalls. Complete engineering staff, five plants. Inquiries are welcome.

INGALLS
INDUSTRIES

MAIN OFFICE: BIRMINGHAM, ALA.

Sales Offices in New York, Chicago, Pittsburgh, New Orleans

STRUCTURAL STEEL • STAINLESS STEEL
OIL & CHEMICAL STORAGE TANKS • SHIPS & SHIP CONVERSIONS • BARGES • WORKBOATS • REPAIRS

Manufacturers' Publications

Karbate Pipe; Fittings—Installation manual describes Karbate-brand pipe, fittings, and connections, as well as the cements used to bond these products. Catalog Section M-8801 is a companion piece to the company's Catalog Section M-8800B. The installation manual (M-8801) features a description of the ease and simplicity of using the Karbate supplies.—National Carbon Co., Inc., 30 E. 42nd St., New York 17, N. Y.

Water-Well Supplies — All the equipment necessary to drill and produce a water well is described in 110-p. booklet entitled "Composite Water Wall Supply Catalog". It is designed to serve as a complete reference book for operators' requirements. The catalog classifies various supplies and equipment under 150 general headings.—The National Supply Co., Water Well Dept., P. O. Box 416, Pittsburgh 30, Pa.

Ways to Mix, Place Concrete—Dumpcrete folder (8 pp.) lists seven ways to mix and place concrete at lower cost. The folder, No. L-107, describes several types of jobs including housing, paving, industrial, tunnels, bridges, canals, and sewage treatment plants where scattered pours of concrete were required. In each case, Dumpcrete bodies were used to haul the centrally mixed concrete from pre-mixing plant to the job. Job details and an action photographs are included for each project. —Maxon Construction Co., Inc., Dumpcrete Division, 131 Ludlow St., Dayton 2, Ohio.

Tubular Steel Workhorse—Adjustable, tubular-steel workhorse is described in new data sheet. The Handi-Horse is adjustable to varying heights from 24 to 44 in. as a standard model, with other sizes available to specifications. Predrilled holes in the top channel bar make it easy to bolt 2x4's into position. The data sheet describes how the adjustable feature permits the unit to be used on uneven ground; lists several recommended uses, and describes the non-skid hard-rubber feet.—Broadway Mfg. Co., Waukesha, Wis.

Rotary Blowers—Eight-page bulletin covers the construction features and operating advantages of the Type AF rotary positive blowers for pressure or suction service. It is profusely illustrated, including graphs showing operating characteristics under constant, variable, and multi-speed operation. A selection table, covering the capacity and pressure range of each blower size, is included in Bulletin 21-B-37, together with a dimension print which gives complete details on all standard sizes. Various driving arrangements are also illustrated. Recommended accessories, including pressure and vacuum relief valves, inlet muffler-filters, and straight flow mufflers, for suction and discharge lines, are also described.—Roots-Connersville Blower Corp., 900 W. Mount St., Connersville, Ind.

Lorain Cranes in Use—Full-color 16-mm. film demonstrates graphically a few of the many ways Thew-Lorain equipment can be used to speed material handling and lower costs. Special emphasis is placed on the use of Thew-Lorains on rubber-tires as travel speed and flexibility are gained. Many types of crane equipment are shown in use, such as magnets, various types of slings, special wood grabs, special tongs, and the usual hook block and clamshell bucket. Showing time of the film is 28 min.—The Thew Shovel Co., Lorain, Ohio.

Blast-Cleaning Machine — Catalog describes the 48-in. continuous Wheelabrator Tumblast—an airless abrasive blast-cleaning machine. The catalog is complete with pictures, drawings, and phantom views of operating parts of the machine. Also described is how the combination of tumbling and longitudinal travel of the work provides thorough cleaning and uninterrupted efficiency; how the work is carried through the blast barrel on an endless apron-type conveyor which constantly tumbles and cascades the pieces; and how the speed of operation is regulated by tilting the mill to the proper angle by means of jack screws.—American Wheelabrator & Equipment Corp., 555 S. Byrkit St., Mishawaka, Ind.

Machine Tools—Complete line of machine tools for metal and woodworking operations is listed in a 16-p. catalog. Four new items, catalogued for the first time, include a 12-in. band saw, 6-in. jointer, 8-in. tilting table saw, and a 9-in. tilting arbor saw. In all, nine types of machines are illustrated. Complete specifications and descriptions are given for each machine.—Walker-Turner Division, Kearney & Trecker Corp., Plainfield, N. J.

ADVERTISERS IN THIS ISSUE

Adams Mfg. Co., J. D. 56
Allied Steel Prdts. Corp. 75
American Hot Dip Galvanizers Assn. 76
American Lumber & Treating Co. 62
American Manganese Steel Div. of American Brake Shoe Co. 61
Associated General Contractors of Amer. 47

Bailey Meter Co. 59
Baker Mfg. Co. 3
Bay City Shovels 72
Behlen Mfg. Co. 72
Bethlehem Steel Co. 1
Blaw-Knox Div. Blaw-Knox Co. 59
Briggs & Stratton Corp. 50

Ceco Steel Products Corp. 91
Cement Gun Co. 75

Ford Motor Co. ..... 4th Cover

General Electric Co. ..... 2nd Cover
Gunite Concrete & Construction Co. 71
Gurley, W. & L. E. 65

Hyster Co. 53

Imperial Pencil Tracing Cloth 57
Ingalls Iron Wks. 93
Irvington Form & Tank Corp. 79

Jaeger Machine Co., The 5
Johnson, C. S. Co. 7

Koehring Co. 7
Kwix-Mix Co. 6, 7

Laclede Steel Co. 65
LeTourneau, R. G. 44, 45

M. & H. Valve Fittings Co. 42
Mahon Co., R. C., The 43
McKiernan-Terry Corp. 59
Merritt-Chapman & Scott Corp. 55
Mixermobile Mfrs. 41

National Cotton Council 10

Owen Bucket Co., The 95
Ozalid Div., General Aniline & Film Corp. 4

Parsons Co. 7

Raymond Concrete Pile Co. ..... 3rd Cover
Richmond Screw Anchor Co., Inc. 2
Rodgers Hydraulic, Inc. 14
Rust-Oleum Corp. 58

S K F Industries, Inc. 12
Smooth Ceilings System Co. 76
Sprague & Henwood, Inc. 71
Stefco Steel Corp. 71
Stow Mfg. Co. 72
Sturtevant Div. Westinghouse Electric Corp. 66, 67

Trinity Div. General Portland Cement Co. 59

U. S. Gypsum Co. 37
U. S. Steel Supply Co. 8
U. S. Steel Corp. 8

Weinman Pump Mfg. Co., The 39
Wenzel Tent & Duck Corp. 51
Westinghouse Electric Corp. 48, 49, 66, 67
White & McColl, Inc. 59

Searchlight Section
Classified Advertising ..... pgs. 83-89

ENGINEERING NEWS-RECORD

G. R. Ramel, Sales Manager — Howard Olsen, Business Manager

Sales Representatives—Fred G. Hudson, L. H. Hunt and H. L. Keeler, 520 N. Michigan Ave., *Chicago* 11; Ralph Dorland, 68 Post Street, *San Francisco* 4; D. S. Robertson and W. G. Payne, 330 W. 42nd St., *New York* 18; A. B. Cozzens, 17th and Sansome Sts., *Philadelphia* 3; E. E. Duff, Jr., Hanna Bldg., *Cleveland* 15; B. F. Horn, Penobscot Bldg., *Detroit* 26; W. E. Donnell, Continental Bldg., *St. Louis* 8; C. F. McReynolds, 621 So. Hope St., *Los Angeles* 14; Ralph Maultsby, Rhodes-Haverty Bldg., *Atlanta* 3; J. H. Allen, First National Bank Bldg., *Dallas* 1. Other sales offices—738-39 Oliver Bldg., *Pittsburgh*, 1427 Statler Bldg., *Boston* 16; Aldwych House, *London*, England.

The New Catalog of

and Grapples

This and other helpful information to aid in selecting the proper bucket is contained in this profusely illustrated catalog. You'll want to be informed as to its contents.

Date_____

THE OWEN BUCKET CO. 6010 Breakwater Avenue • Cleveland, Ohio

Branches_____

Name_____

Address_____ City_____

Company_____

Title_____

READER COMMENT

Building Code Unification

Sir: We have just received our copy of the October 13 issue of Engineering News Record and wish to comment on the editorial, "Building Code Unification" on page 21 thereof. For your information, the Pacific Coast Building Officials Conference will be represented at the National Board of Fire Underwriters joint meeting in Washington Oct. 28.

The Pacific Coast Building Officials Conference in the current situation—this "joint committee"—has assumed the role of innocent bystander until evidence is provided that the movement is not fire-insurance-controlled. Often the innocent bystander is hurt—and this seems the case now, when a national magazine places the responsibility for non-cooperation at our door.

The work of the PCBOC sponsoring the Uniform Building Code (now in its eighth edition) has been greatly hampered by the activity of the National Board of Fire Underwriters which has attempted to prevent the adoption of the Uniform Building Code by assigning deficiency points against the Uniform Building Code and through utilization of its rating bureaus to assess heavy penalties against the cities adopting this code. The position of the PCBOC in this regard was thoroughly covered in an article in the October, 1948, issue of BUILDING STANDARDS Monthly.

The American Society of Building Officials was set up in July, 1948, by the Building Officials Conference of America and the PCBOC with several aims in view, one of them being the preventing of exactly the situation you mention in the last paragraph of your editorial—a "code war" between author organizations. We feel that the program of the Joint Committee on Unification of Building Codes sponsored by the insurance interests should be turned over to the ASBO for sponsorship and guidance. We feel that the chairmanship of this committee should pass either to the BOCA or to the PCBOC, or to a man appointed by the combined building officials organizations to coordinate the work. We feel that the work, as outlined by the joint committee, is constructive, but should logically be the work of the building officials organizations themselves. . .

The success of our attempt to coordinate the work of the BOCA and the PCBOC Conference and other building officials organizations through the American Society of Building Officials has been hampered by activities of other organizations attempting to prevent the discussion of the building code problem by the ASBO. We feel also that the most important effort toward coordination of building codes, that of the ASBO, has been ignored by several important agencies.

The building materials industry has shown its tendency to go along with the National Board of Fire Underwriters movement for unification rather than with the ASBO, which could be the most powerful organization for the development of better building laws in the United States. The building officials organizations have no axes to grind, either in the sale of fire insurance or the promotion of building materials and products, and they have shown their willingness to cooperate with industry and the NBFU in the preparation of building code requirements through committee work. The only other agency which can claim this immunity from selfish interests beside the building officials organizations is the Department of Commerce and its related United States Government bureaus, but there we meet the bugaboo of federal control of municipal law.

We resent the implication in your editorial that the PCBOC is a non-cooperating organization. The record is clear on this subject. Beginning in 1938 the PCBOC has attempted to do everything possible to cooperate with other building officials organizations in the United States in the interest of unification of building codes. The PCBOC has invited the other building officials organizations to cooperate in changing the uniform building code in any particular, by means of open committee work, to meet the requirements of a national building code. It has offered the full services and facilities of the conference committees which have been functioning efficiently for many years. But each time that we seem to be getting somewhere with the other building officials organizations the principle of divide and conquer introduced by selfish interests has prevented this unification.

The Pacific Coast Building Officials Conference stands ready now to cooperate with any other building official organization in the interest of unification of building codes. Should the basic building code prove to be better as a national building code than the uniform building code, the PCBOC will adjust the requirements of the uniform building code to those of the basic code. Should the BOCA decide, on the other hand, that the requirements of the uniform building code are better for this purpose, they will be given the privilege of using the uniform building code to adopt or amend for their city members without any strings attached. Should both organizations agree that a combination of both codes, with the best material from the other model codes, would be the answer to a national code, then the other building officials organizations can expect fullest cooperation from the PCBOC.

I repeat, we have no axes to grind, no selfish interests and nothing to hold us back from complete cooperation with the Building Officials Conference of America, Southern Building Code Congress and all other building officials organizations and code writing agencies, but we refuse to submit to the stuffed club of the capital stock fire insurance rating bureaus.

HAL COLLING *Managing Secretary, Pacific Coast Building Officials Conference.*
GILBERT E. MORRIS *President, American Society of Building Officials.*

EDITOR'S NOTE—Messrs. Colling and Morris corroborate the statement in the editorial that the joint committee had not received cooperation from the PCBOC, but they offer a definite reason and place themselves in favor of unification. Any implication of doubt on the latter point that may have been read into the editorial is therefore wrong. The statement is welcome and constructive, as a step toward the unification of codes that is so badly needed.

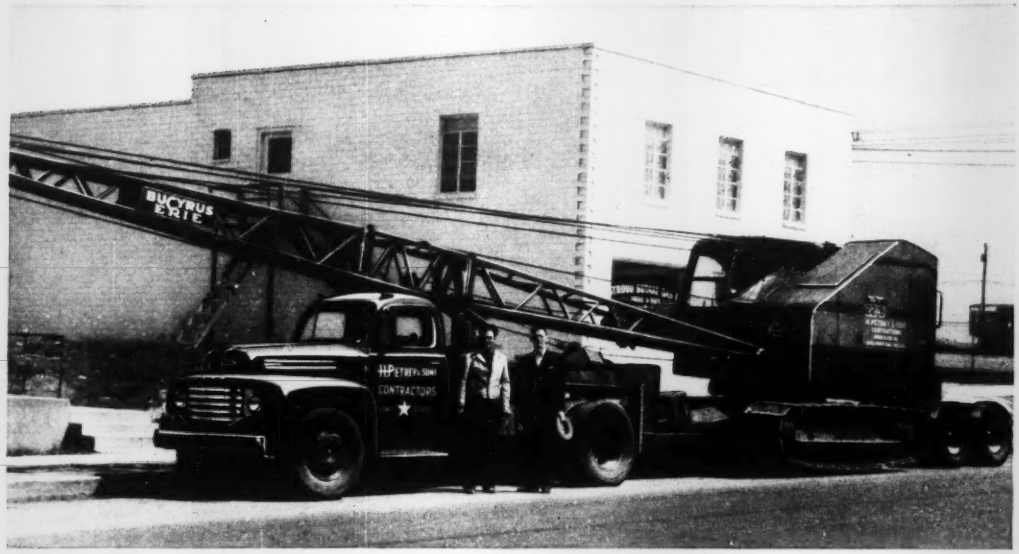
Engineers at Richland

Through oversight the names of the architect-engineers were omitted in the list of subcontractors working for the Atomic Energy Commission and the General Electric Co. on the Hanford Works in Washington in the article entitled "The Richland Story," ENR Sept. 8, p. 16. The firms of J. Gordon Turnbull, Inc., and Graham, Anderson, Probst & White served jointly as architect-engineer and prepared the master plan for the expansion of Richland, designed most of the buildings and did the engineering for the site development, highway construction and other engineering involved in the work described in that article.

Raymond

Pattern FOR Permanence

52 YEARS FOUNDED 1897 OF PROGRESS



ROADSIDE REPORT *by H. Petrey of Arlington, Texas. Ford Model F-8 shown has a G.T.W. rating of 39,000 lbs. as a tractor. G.V.W. rating is 21,500 lbs.*

"My FORD moves this equipment 10 miles faster than 5 other makes I tried!"

"RECENTLY I purchased a Ford F-8 to haul a 50,000 lb. crane from job to job," reports H. Petrey of Arlington, Texas. "I must say this 145-horsepower Ford F-8 is the King of them all. It moves this equipment 10 miles faster and safer than the 5 different trucks of other makes that I have tried, to date. I am real proud of this BIG JOB."

In terms of *Payload-Performance* the Ford BIG JOBS have no equal in their class. No other truck offers so much payload capacity in relation to chassis weight with as high a horsepower rating per gross ton. This means bigger payloads within legal load limits. It means faster, more profitable delivery of big loads. Ford's high *Payload-Performance* is evidence of Bonus Built construction. Each of over 150 Ford Truck models is Bonus Built... built extra strong to last longer.

*BONUS: *"Something given in addition to what is usual or strictly due"—Webster*

FORD 1949 *Bonus Built* TRUCKS 1959

BUILT STRONGER TO LAST LONGER

USING LATEST REGISTRATION DATA ON 6,106,000 TRUCKS, LIFE INSURANCE EXPERTS PROVE FORD TRUCKS LAST LONGER!

ONLY THE FORD BIG JOB HAS ALL THESE FEATURES

- ★ New 145-h.p. Ford V-8 engine for top performance.
- ★ Ford concentric dual-throat carburetor for more power, more economy.
- ★ Big Ford power-operated hydraulic brakes; front 16-inch by 2¼-inch; rear 15-inch by 5-inch double cylinder on F-7, 16-inch by 5-inch double cylinder on F-8. Air brakes also available for F-8.
- ★ New heavy duty 5-speed transmissions—overdrive or direct-in-fifth—for operating flexibility.
- ★ Ford Super Quadrax single speed axles; two-speed axle available in Model F-8.
- ★ Large diameter (10-inch) wheel bolt circle with 8 studs to allow for extra-strong hub construction.
- ★ Million Dollar Cab with Ford Level Action suspension for greater driving comfort.
- ★ Nationwide service from over 6,400 Ford Dealers.
- ★ Ford Bonus Built construction for long truck life.

Gross Vehicle Weight Ratings: F-8 up to 21,500 lbs., F-7 up to 19,000 lbs. Gross Combination ratings: F-8 up to 39,000 lbs., F-7 up to 35,000 lbs.